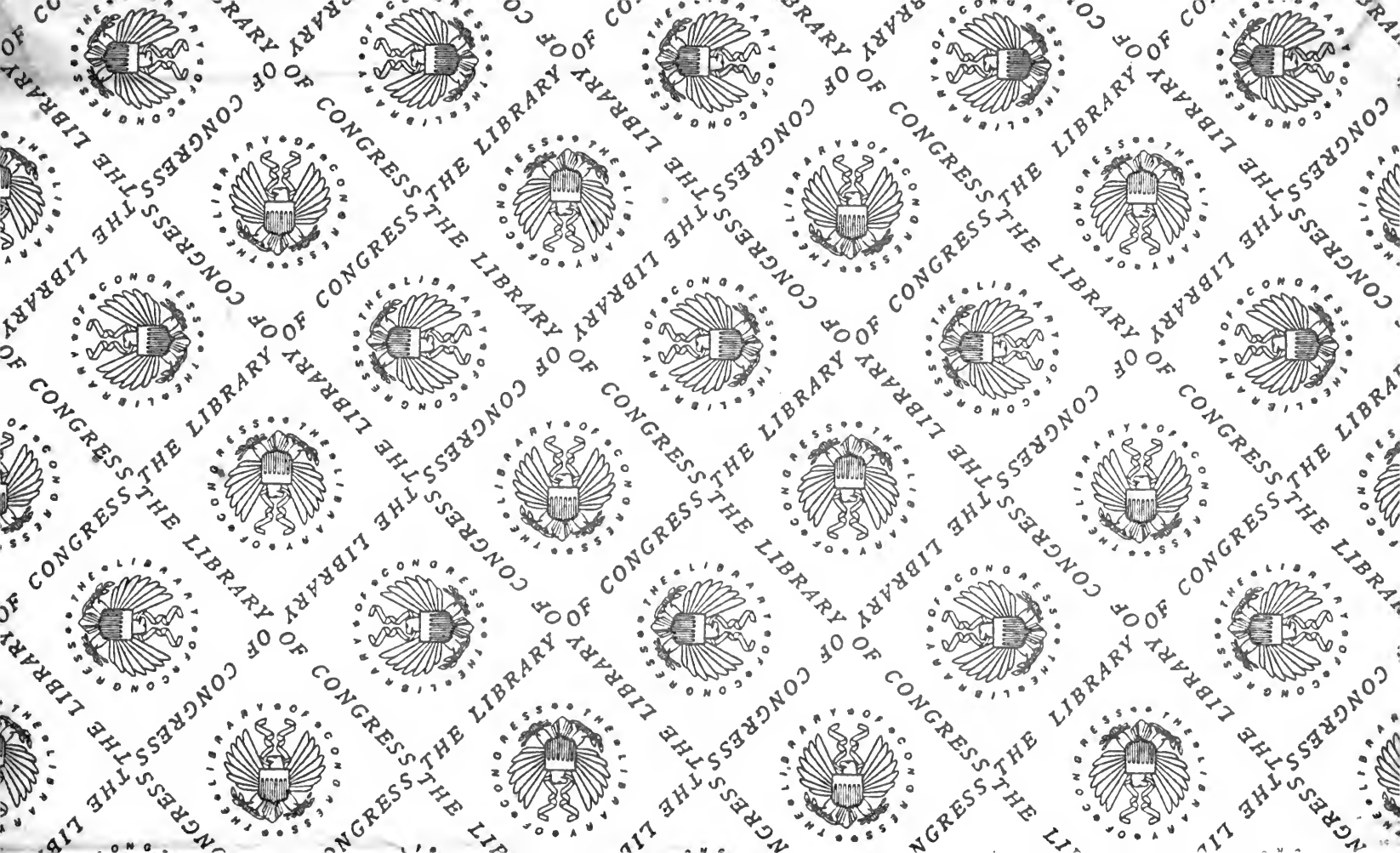
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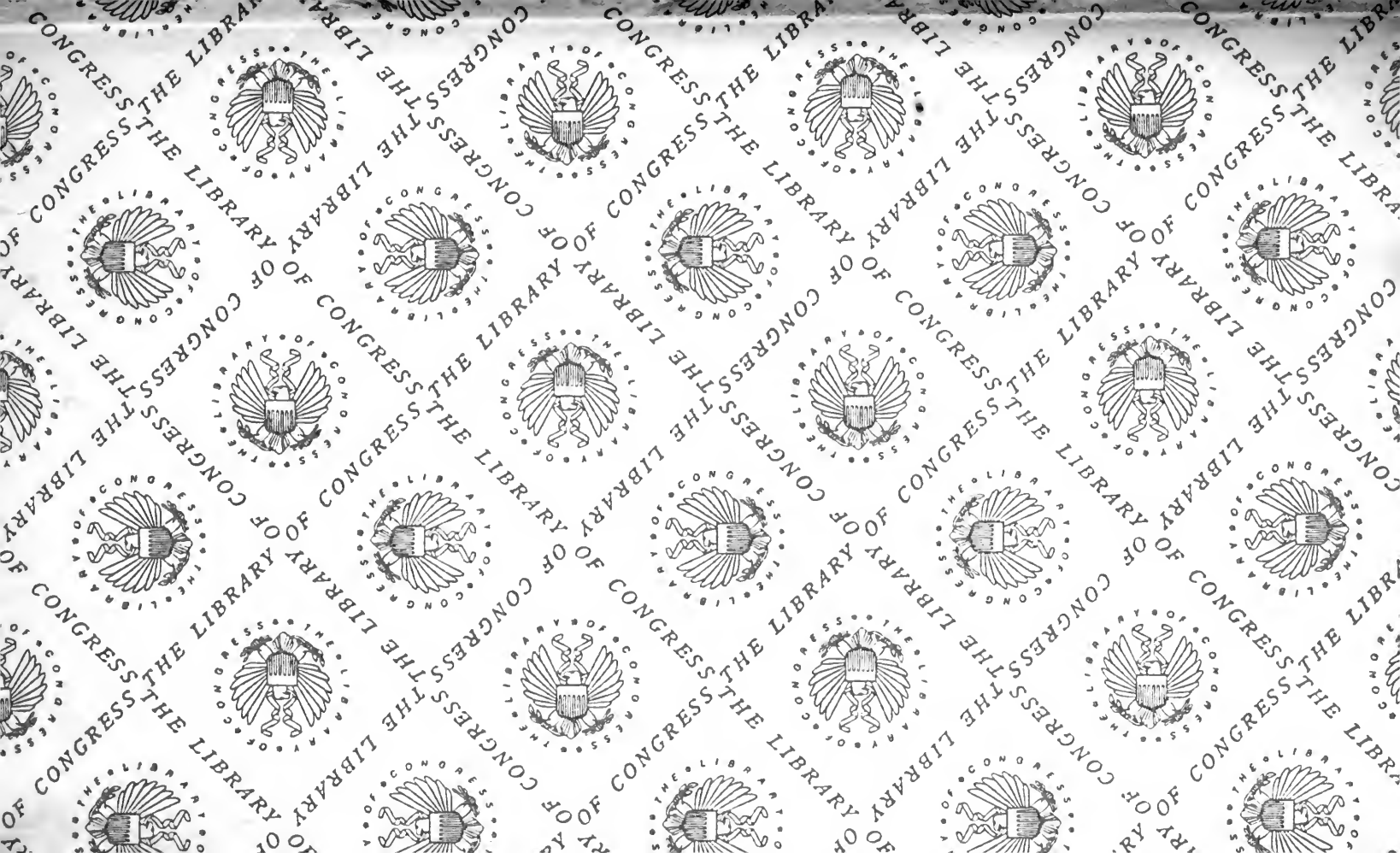
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PSYCHOLOGY
AND THE TEACHER

PSYCHOLOGY AND THE TEACHER

BY

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TO

GEORGE HERBERT PALMER

IN GRATITUDE

PREFACE

THIS book hopes to be a source of information for the teacher. It aims to present the essentials of all which modern psychology may offer to the school. Yet this is only one side of its task.

Many signs indicate that a turn in the road of educational progress is near. Important changes seem unavoidable. A pedagogical unrest has set in. It is a time in which the fundamental principles and methods must be discussed with thoroughness and without prejudice.

Hence it is not sufficient simply to report the psychological facts, but more important to examine carefully all the connections between psychology and education. The lack of clearness in this relation has been one of the most damaging sources of confusion in recent years.

Such an inquiry quickly leads to deeper problems. We must examine the purposes of teaching, and these again in reference to the ideals of life. In this way the book aims to be far more than a text-book of specialistic knowledge. It is a book of idealism and reform, aiming toward a better school and a higher valuation of the teacher's calling.

This book on psychology and education is, in a way, a continuation of my recent volumes, "On the Witness Stand" and "Psychotherapy," the one discussing the relation of psychology to law, the other to medicine. All

three deal with the practical value of modern laboratory psychology for the daily life. They represent not the only, but the three most important aspects of applied psychology.

There will be some who will be proud to discover that this book contradicts earlier utterances of mine. They will point triumphantly to some much-discussed essays in which I earnestly warned against the use of psychology in the schoolroom. But such friends are mistaken. More than ten years ago I did warn against a hasty application of psychology before the psychologists were ready to offer material which is adjusted to the needs of the teacher. I demanded special psychological studies and experiments in the service of education. Just this demand has been happily fulfilled in the last decade, and therefore the time for a more intimate contact between the laboratory and the school seems to me to have come.

Moreover, even at the time when I urged precaution, I certainly was not unaware of the important service which psychology may offer to the teacher. In my book on methods of psychology, several years before those warning essays, I wrote that every teacher of the future must build up his work on psychology. Thus I have never changed my opinion and have not gone through any pedagogical conversion. But I do hope that my previous expressions of hesitation may suggest to the teachers a certain confidence in the character of my discussion. The problems of the school demand conservative treatment.

The discussion in the first part of the book necessarily sometimes takes a philosophical turn. There are not a few teachers who have an incurable dislike for such abstract problems. They may omit chapters four to eight. On the other hand, to the readers who feel the life importance of these fundamental questions and who are anxious to follow

the inquiry further, I venture to suggest a quiet study of my larger volume, "The Eternal Values." Those who wish to enter more fully into the empirical psychological material will have to turn to the books of Stanley Hall, Judd, Baldwin, James, Sully, Thorndike, Horne, Whipple, etc., but above all to the widely scattered publications of the psychological laboratories. Those who master the German will find an abundance of material and suggestion in the experimental studies of Lay, Meumann, Stern, Kraepelin, Liehen, Brahn, etc., and the various magazines for educational psychology.

HUGO MÜNSTERBERG.

HARVARD UNIVERSITY,
September 1, 1909.

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ETHICAL PART

THE AIMS OF TEACHING

CHAPTER I

THE CONFLICT IN MODERN PEDAGOGY

As a teacher I intend to speak to teachers about the teachers' aim and work and mission, and about the means, especially the psychological means, which serve their noble ends. The whole world of educational tasks lies before us, and our survey will turn in many directions. We are to consider the child and the community, the quiet home and the whirl of life; we are to discuss the courses of study and the methods of the school, the values of the various subjects, and the help to be gained from psychological experiments; we are to think about play and discipline, work and fatigue, about childhood and adolescence, about the intellect and character, the attention and the ideas, the emotions and the will of boys and girls—but the teachers themselves will remain the center of all for us.

We shall not forget that the teachers are of many types: the primary school and the high school teacher, the teacher young and old, inexperienced and overexperienced; the half-trained girl who teaches for a few seasons just because she is tired of home, and the university graduate who devotes his life to the profession as the most ideal of all callings; the teacher in the little valley far from the rush of the world, and the teacher in the turmoil of the metropolis; the optimistic teacher and the pessimistic—and yet they have all embarked together. Perhaps the

best which they have to know is common to all of them. What really separates them into two classes—the true cabin passenger of the ship and the mere steerage—is the one fundamental difference: whether they have a high ideal of their duty as teachers or are satisfied with a low one; whether they believe in the noble mission of the teacher and serve it with the pride of the inspired soul or merely go through the tricks and are just "teaching" to earn a salary with the smallest effort until the vacation frees them from drudgery.

Whoever speaks about the teacher's work ought to speak clearly and simply. Vagueness is the habitual and yet unpardonable sin of pedagogical literature, and lack of simplicity too often hides lack of straightforwardness. Sound truth, well understood, is always simple and clear. But to be simple must not mean to be trivial, and to make things clear must not mean to cheapen them. Education is a serious matter and demands serious effort from all those who want to master its problems. To talk to teachers in a way that allows them to remain passive listeners without effort or thought on their own part means, indeed, to cheapen and to lower the level of the task. We aim to be clear, but we do not wish the teacher ever to forget that we are discussing a difficult and complex question, and that it is not worth while to discuss it at all if our discourse becomes a monologue; the whole mind of the reader must be ready to respond in self-activity. If the teachers did not forget that so easily they would not so often become the prey of pedagogical fads and fancies, advocated with empty arguments on one day and forgotten with indecent haste the next.

We have no new fad to defend and no pet theory to offer. We have no patent medicine for all educational

blundering. We are not hustling with the "yellow" psychologists, nor do we worship at the bygone shrines of the "Herbartians"—we have no schemes at all for "getting rich quick" in educational wisdom. We feel only the deep conviction that no one deserves to be a teacher who does not know that the teacher's mission is a sacred one. And to devote one's life to a great mission full of responsibilities and of difficulties certainly demands most serious thought. No effort ought to be spared, no helpful study ought to be neglected, no careless go-as-you-please method ought to be excused. The whole community has felt this instinctively. It is no longer willing to suffer the reckless ignorance of the haphazard teacher. Louder and louder arises the cry: The teacher must understand the material with which he works; must know the mind and body of the pupil and the social conditions under which he lives; must know psychology and sociology and physiology; must go through child study and the study of adolescence—in short, must study as thoroughly as possible the mental and physical facts, their working and their laws.

And yet—and yet—paradise seems no nearer. Big volumes on psychology, its principles and its laws, stand on the shelves of many teachers to-day, and the natural science of childhood and adolescence seems wonderfully at their command, and yet a pedagogical unrest pervades the whole social community. The pile of interesting facts which the sciences heap up for the teacher's use grows larger and larger, but the teacher seems to stare at it with growing hopelessness. He blames himself and ever makes new efforts to master the facts; yet he cannot help feeling that they do not tell him what he ought to do. Perhaps he feels more erudite, but he does not feel wiser. He knows so many things that his own teachers did not dream of; and

the only thing he does not know is what the use of all that knowledge can be. A wide open sea is suddenly before him, but he feels that he has no compass on board and that no one has told him in what direction land lies or how the next harbor can be reached.

We ought not, indeed, to deceive ourselves. The mere study of psychological facts, of the child's nature and the pupil's biology has too often been followed by sad disappointment. The old naïveté has gone; to be sure, it was the naïveté of ignorance, and yet there was a safer feeling of guidance than in the new knowledge, which seems insufficient and discouraging. Wider and wider circles, within and without the school, feel to-day as if an inner conflict had arisen, destroying the unity of the work and thus paralyzing the best efforts; as if there must be something wrong in the new doctrine which tells the teacher that the new education ought to get its aim and guidance from the study of the child's nature.

Such a conflict exists; there is, indeed, something wrong. And while not a single step ought to be taken backward, and while not a single fact ought to be unlearned and not a single effort of this new movement discouraged, yet real progress will never result until the wrong is undone and the conflict which lies below is clearly understood by everyone. To put it in a nutshell, the older times which ignored the scientific knowledge of facts were, for that reason, slow and clumsy in moving toward their educational goal; but, after all, they had a goal; they had purposes and ideals which were set before them by their interests and their traditions, by their moralities and their beliefs. The new times master the facts and would be splendidly prepared to reach the goal, but they deceive themselves with the idea that such a goal can

itself be set by the study of facts. They do not see that no knowledge of facts in the world can ever tell us what we ought to do, that no science can teach us what our aim and our duty, our purpose and our ideal must be. We want to rely on facts alone and are blind to the fundamental fact that facts have value only in the service of final ends which the will must create and which no knowledge supplies. Lost are the good old times which were sure of their ends but did not know the means of reaching them; and there is upon us the new order, which supplies us with plenty of means but forgets that means are never substitutes for an end. This is the great conflict which is instinctively felt. We do not want to go back to the old ignorance which neglected the facts, and yet we do not find a real guidance in the new knowledge, because through its mere trust in facts it can never come to a real aim and purpose.

There is only one way to remove this conflict. No mere arbitration in favor of the one or the other side can help us. The belief in ends without the knowledge of the necessary means must be just as unsatisfactory to us as the mere knowledge of possible means without clear insight and full belief in valuable aims and ideals. Neither one can be the demand of the morrow.

Nor can a cheap compromise be in question. It surely would not do to recommend the cramming of some psychological laws, and then simply to add an appendix of moral appeals. Nor would it be better to warm over the old traditional phrases of educational ideals and stuff them with fragments of sociology and child study. What is needed is a really organic union of the aims and the means, a true synthesis; but no one ought to believe that such an ultimate unity can be reached through the arguments

of popular discussion. Common sense alone cannot really settle such a dispute, for the common sense of to-day is and always has been merely the echo of the philosophical thoughts of yesterday. What the best thinkers of one generation elaborate by hard work appears to the next century as the common-sense opinion which is at once applicable to the momentous problems of life. No; what previous generations thought cannot help us in the difficulties which are born with our own time. If we want to see clearly and to find the full truth, we have neither the right to evade the task by a one-sided preference or by a superficial compromise nor to settle it by the trivialities of traditional common sense; we must seriously think on our own account; yes, we must philosophize in the new spirit of our time.

Philosophize! He who feels the pulse of throbbing life and longs for the useful, solid, real facts which knowledge can supply so that he may work and fight and win—he does not want to philosophize! He feels a repelling deadness in the word philosophy; it suggests to him vague, empty generalities, lifeless conceptions, outworn theories—spider webs which science has brushed away. Philosophize! What can it profit us to fly to metaphysical regions if, after all, no one can know the last secrets of the beyond? Does not religion satisfy our belief? Our thought and study at least ought to belong to solid reality. We hear all this a thousand times and yet it is the most absurd and the most harmful prejudice, brought about by a complete failure to see the eternal youth of philosophy. No effort of thought comes nearer to real life, no study is nearer the immediate experience, no knowledge more valuable in our practical endeavors. It is just he who seeks life instead of abstract specters who must turn to philoso-

phy; and, whether we like the fact or not, it remains a fact that philosophy alone can lead to the vital problems which lie before us and before everyone who seeks the aims and means of education. Philosophy is the only entrance gate to pedagogical studies.

It cannot be otherwise. Some one may say—and it is just that which ignorance always repeats: No, let us omit all philosophical inquiry and let us begin at once with the facts. But must we not first ask: What facts? Why do you wish to select just these facts? Why are they important to you? Well, they serve certain purposes and help us to reach certain ends. But why do you care for just these purposes and why do you prefer these ends to others? And if we seek the answer to such first questions, if we study the ultimate value and the significance of things, we are already in the midst of philosophy.

The first part of our inquiry must therefore be philosophical in its temper. That part of philosophy which deals with the aims of human actions is ethics; our first discussion thus lies in the field of ethics. Only when we know the ends at which we are to aim can we turn to the ways which lead thereto and study the special psychical means. Our second part must therefore be psychological. The application of the means to the end leads finally to the practical questions of actual school life; this gives us the third, the pedagogical part. And now we turn to the ethical problem.

CHAPTER II

FACTS AND PURPOSES IN EDUCATION

We said that it must be our first task to see clearly the difference between means and aims, between facts and purposes. We must recognize and select the aims of education before we can apply the psychological facts in their service. The need of this separation may become more evident if we point at first to a few illustrations. They may indicate by experiences of daily routine how inadequate the facts are to show us the best goals, and how easily commendable movements may cheapen their causes by fallacious arguments which confuse facts and purposes. The student of the child, for instance, knows an abundance of facts with reference to imitation. No one doubts that imitation plays a decisive rôle in the development of every young mind, hence it is rightly a favorite topic of the modern psychologist. He tries, therefore, to analyze the imitative process; he seeks its elements and studies upon what factors it is dependent, how its working can be improved and strengthened, or how its influence may be suppressed. If all the means of modern psychology are conscientiously used, we may finally come to feel that we know all the facts involved in imitation; but can that possibly include also a knowledge of what the child ought to imitate? Can any study of imitation as a psychical process give the teacher the slightest hint as to what models

for imitation ought to be put before the mind of the pupil? Is it more valuable to imitate the hero or the scholar or the martyr or the athlete or the captain of industry? Is it more valuable to imitate unscrupulous success or humble honesty, the life of self-denial or the life of glory? Some model for the imitation of the boys must be in the soul of every teacher—can the psychology or physiology or sociology of imitation decide which model is the right one? To ask the question means to answer it in the negative. It would be absurd to expect it; we might just as well expect that the muscle physiology of our movements in walking could advise us as to the best promenade to take. Whether the boy is to imitate, and thus to choose as his ideal the prize fighter or the millionaire or the faithful school-teacher must be determined by considerations which lie entirely apart from the study of the laws of imitation. Much good psychology too often supports quite pitiable suggestions for pedagogical models, and the ambiguity remains unnoticed as long as the psychological facts seem correct.

Subtler and more misleading is the confusion of facts and purposes in the case of the memory functions. In every classroom memorizing plays an essential rôle, and therefore no teacher can neglect the mechanism of the pupil's mind which serves the retention of the memory material. He has no right to set his pupils tasks of learning which go beyond the psychical possibilities of the child. The development of memory with years, the individual differences of the learning capacity, the whole structure of the process, will accordingly be of deep interest to the intelligent teacher. He will also gladly consult the psychological books as to the conditions under which "learning by heart" is expedited, or under which

the memorized material is more correctly reproduced. He will find out what influences make the memory more receptive or the time of exact recollection longer. In short, he will study the facts which the psychologist knows not only from careful observation, but from systematic experiments in the psychological laboratory.

But he will have to be very careful if he really wants to separate the facts from the valuations. Too easily will he slip from the one to the other. Without noticing it himself, he will smuggle judgments and purposes into his descriptions, and as soon as he has given them ever so little a foothold, he will be unable to resist the influence of any pet prejudices. Of course, if we should say, These are the laws of memory, therefore the pupil ought to learn poems by Longfellow but not poems by Whittier; or, These are the conditions for quick and exact learning by heart, therefore the class ought to memorize the dates of American history but not those of English history, everyone would see the absurdity at once. Everyone would object that the structure of memory cannot prescribe what we ought to use it for any more than the knowledge of how a typewriting machine works can tell us what we ought to write with it. Yet all this strikes us as absurd only because the fallacy is so clumsy. As soon as the same principle is applied in a subtler way, it goes unnoticed. We must not forget that we are in the midst of such fallacies, even when we speak of an improvement of memory as if that were a purely psychological problem. The psychologist as such cannot know an improvement of mental faculties, because such a term implies, of course, that one mode of behavior of the mind is better and more valuable than another; and it is just that which can never be a matter of fact.

You may reply that it seems a matter of common agreement that the brilliant mind of a genius is better than that of a stupid fellow, or that a mind which can connect many thoughts is more valuable than one which can hold merely a small number. You may say that a memory which can reproduce the memorized material after a long time is preferable to the one which forgets quickly, and thus that we have a right to take all this for granted and speak of improvement. Well, that may perhaps be true in this case, but the point is that we ought to see clearly that such a judgment is really involved, however common and undisputed it may be. If we do not see the principle, if we carelessly take for granted that the preference is itself given by the facts, then we have no power to resist when the next judgment which is slipped in is not at all common, and perhaps most disputable. And where does the common agreement that we can take for granted really begin and end? That the brilliant mind of the genius is preferable to that of his stupid fellow is surely a common decision, but if we look more sharply at the claim, it becomes clear that the words involve a begging of the question. Brilliancy and stupidity and genius are not really terms which describe only; already they contain an attitude of preference or disfavor. From the standpoint of facts we know a certain lack of ideas or slowness of association or inability of connection, and so on, but as soon as we designate all that as stupidity, we have gone beyond the facts and have asserted that this combination of mental qualities ought to be rejected as less desirable. We may have a right to do so, but we cannot overlook the fact that we have already settled the question of preference in calling one mind stupid and the other brilliant. And if, finally, a skeptic steps in and perhaps maintains that the

stupid people are often more honest or more religious than the brilliant ones, and that from his point of view of life the modest intellect is therefore preferable to the shining one, we see again that we are moving in a sphere of judgments, preferences, convictions, ideals, and that all this is aside from questions of fact.

Still more flimsy is the pretense of common agreement when we say that the mind which holds many thoughts is better than the one which holds few, or that the memory which recollects after a long interval is better than the one which soon forgets. That preference may be entirely justified if we have certain definite purposes before us, but we might as well have different purposes and arrive then at a different valuation. For certain ends it might be better to have a mind which concentrates itself on a few ideas without the ambition and power to master a large number of ideas; the narrow and concentrated mind, with its enthusiastic onesidedness, may be much more effective for many ends than the versatile mind with its distracting richness; and the memory which is overburdened with dead stuff simply because it has a strong power of recollection may be, for certain ends and purposes in life, much less desirable than the memory which does not retain the insignificant, but continually sifts its matter and holds only the really important.

And, even if there were agreement in such preferences, where is the demarcation line between the valuations that are to be taken for granted and those that demand especial examination? Is a good memory for printed words better than a good memory for the experiences of practical life, and ought we to cultivate the one at the expense of the other? There might be not a little difference of opinion, and in such a dilemma psychology cannot help. And it is

only another turn of the same thought if we say, that because certain methods of learning make learning easy, therefore we ought to apply such methods, or because certain material is quickly learned, therefore such material is especially fit for the pupil. Who has told us that easy learning is to be our goal? Have we an inborn knowledge that we are intended to learn without especial effort? Are we sure that it is our mission to master by memory the greatest possible amount of material, and that the quickest method of cramming is the ideal. Some one might say that, on the contrary, the mere quantity of learning does not count at all; that to carry a large bag of dead memory stuff on the shoulders rather than a small one does not make one more of a man. Everything depends on the power to master the interplay of ideas, and for this it may be more important to become trained through the learning of difficult material. This may be a wrong view of our duties, but in any case we have to settle such problems and cannot silently take for granted that only one method is right. The quickest way to learn French may be the poorest and least educative one for purposes of life, as a whole, however obvious it may appear that quick, easy acquisition is to be desired.

Still more usual and still more harmful than in the memory problem is the general pedagogical confusion of "is" and "ought" in the question of attention. No set of psychological facts has been more sedulously courted by the pedagogues. To attention in the wider sense of the word belongs everything under the label "apperception," of which we hear and see so much, and with it goes the whole group of problems which refer to "interest." If all side issues are ignored, the leading train of thought remains as follows: Psychology shows that the

interesting thing most easily awakes and holds our attention; attention is necessary for the pupil's work; therefore we ought by all means to prefer the interesting thing. And yet this is not the reasoning of logical thought, but the trick of the logical prestidigitator. A hundred high-sounding arguments may hide this naked confusion, but confusion it remains, and it has made havoc of sober education as has no other pedagogical fantasy.

Of course psychology can certainly show that the interesting thing holds the attention, or rather it need not show what is already involved in the definition; we call interesting just that which is the object of our involuntary attention. Whatever attracts the attention without any especial effort of will is interesting to us—from the loud and glaring spectacle on the lower level up to the enchanting work of art on the higher level, from the excitement of our senses up to the excitement of our richest emotions. To keep children, the young ones and the adult ones, quiet with ease there is, indeed, no simpler way than to occupy them with material that is in its nature attractive and interesting—it stops the crying of the baby and the social unrest of the masses. But where is the bridge that leads from such obvious facts to the daring assumption of judgment that education ought to prefer the attractive and to brush aside all that is uninteresting? Who has the right to determine that the child ought to do just what titillates his taste and attracts his fancy? It may well be possible to plan an eight years' school course or a twenty years' professional course or a fifty years' life course —in which everything is arranged according to the natural interest and no effort will be needed to keep attention afire. But is that really an ideal to be fought for? May it not be that the most important aim of education is just the

power of overcoming the temptations of mere personal interest, the power to serve purposes which demand effort of will and discipline of attention?

Such doubt may be unwise, such a policy may be old-fashioned, but at least such a counterfancy is possible, and shows that the conflict of the various views must be examined. It is inexcusably reckless simply to take any of the possible conclusions for granted, and, without discussion, to proclaim that the child ought to study that which of itself holds the child's attention most easily. If we allow such a dogma to go unchallenged we cannot be surprised if the kindergarten method, which may be excellent in the kindergarten, creeps up through the whole school life, with results the excellence of which surely cannot be taken for granted. Some will certainly be enthusiastic over the immediate results. All drudgery is thenceforth removed from the schoolroom; the darlings have a splendid time; their whole nature can now develop in accordance with their own instincts; life has become joy again, and, without friction, everyone can pick up a lot of fascinating things to talk about. But there are others who take quite a different view.

They say—we do not ask whether they are petty and shortsighted or whether they are right—they say, The lack of discipline at the very beginning of intellectual growth is an educational sin. The school methods which appeal always to the natural desires and the involuntary attention and interest do not train the pupil in overcoming desires and in controlling attention; they plead instead of commanding; they teach one to follow the path of least resistance instead of the path of duty and the ideal. The result is a flabby inefficiency, a loose vagueness and inaccuracy, an acquaintance with a hundred things and a mas-

tery of none. Public life has to suffer for it; a community which has not had a rigid mental discipline at home and at school must always remain the plaything of its lower instincts. Such a community will continue to follow without check its untrained impulses; it will prefer the yellow newspaper of big headlines to the serious paper which appeals to sober thought; it will prefer, on the stage of the theater and on the stage of life, the vulgar vaudeville and the cheap melodrama to the refined and the noble play; it will be impressed by glaring outer success and by showy size, by quantity instead of quality and value; it will be swept by every passion of the crowd, applauding mediocrities, enthusiastic for everyone who poses for the uncritical, a quick victim to every fad and fancy, unwilling to take the trouble of resisting public corruption and laxity of law. And yet can there be any doubt that it is just a political democracy which ought to be protected against such an inner foe?

Those who speak so disrespectfully of the present-day moods of pedagogy may be shortsighted and in the wrong, but then they must be refuted. Simply to take it as certain that the other side is right will not do, and again the mere facts cannot help us. The mental facts cannot decide whether we ought to use the mental powers for enjoyment or for effort; whether we ought to follow interest or ought to develop the spirit of duty; whether we ought to select what we attend to or attend to what we select. It is the old story again: the facts can never give the "ought."

We have singled out the psychology of imitation, of memory, of attention, of interest; and yet the same thing is true of every other mental function, for the belief that the mere facts yield an aim has often been based as well

on the psychology of emotion, of volition, of instinct, of imagination, of judgment, and the result is everywhere a pedagogical uncertainty and unrest. It is this confusion which lies at the bottom of most debates on educational methods. It is evident that there must be dispute about the means as long as it is not settled what the ends ought to be, or, rather, as long as we ignore the question of aims as an independent question having the right of precedence. To quote a typical case from among a hundred daily occurrences. In a large city the superintendent and the principal of a high school disagreed; the former thought that the school marks were too low, the latter objected to higher marking. Both sides sought to convince the public by appeals to psychological laws. The one party said: It is a well-known psychological fact that low marking discourages the boys; if the average boy feels that he cannot reach the highest marks, he gives up the fight and becomes careless. The other party said: It is a well-known psychological fact that high marks eliminate all distinctions; if everyone can reach the highest premiums, the sense of discrimination is spoiled and the ambitions of the best are ruined.

As the two parties came to two opposed demands from these two psychological principles, it seemed that one of the two mental observations must be wrong, but that is not at all the fact. Both principles are right, and in themselves not in the least contradictory; they would not and could not invite any quarrel. The trouble came only from the illusion that such principles are able to give us any precepts. Such observations are helpful after we have settled what our aim ought to be, but they cannot say anything about the aim. The two parties evidently had opposite purposes in mind. The one considered as the end to

be sought above all the strongest possible development of the best pupils; the other preferred to aim at a fair development of the largest possible number of pupils. Each of these aims has, of course, its characteristic advantages. As soon as we have chosen one of these two goals, we shall make use of those mental facts which are serviceable in attaining it, but the facts cannot help us in choosing. Whether we ought to work for the best or for the many can never be a question of existing facts. No fact can ever help us to decide a question so vital for society, and the true issue is carelessly obscured by bringing into the foreground a pseudo-conflict of psychological observations. Who would be foolish enough to consult the time-table in order to decide whether to travel south or north? We all decide first what end we want to reach, and afterwards we look for the means by which the end may be most quickly and most safely attained. Education, too, must know its ends and aims and ideals before it can profit from the study of the scientific facts in psychical and social life. Education, too, must be sure of its ends before it can select the facts which are serviceable.

CHAPTER III

THE SEEKING OF AIMS

Now we know where to begin. First of all we need an answer to the fundamental question: What are the aims of education? What ought the teachers' work to produce in the boys and girls who are intrusted to their influence? What is the purpose for which the child must go to school? Whatever the teacher must achieve, evidently must be subordinated to these ends. Thus we must secure clearness as to the pedagogical ends.

The systematic inquiry into these ends belongs to pedagogy. But this part of pedagogy cannot be isolated. It is part of a larger inquiry. Pedagogy asks only: What is the purpose for which the child is sent to school? But how can we understand this particular purpose if we separate it from the larger question: What are the purposes of human life? What are the aims of every human being? What ends are worth while? [No one doubts that education is only a preparation for life. However delightful the years of the school time may be, their real meaning evidently lies in the preparation for life as a whole.] The understanding of the purposes of education therefore presupposes an insight into the valuable purposes of life in general. Such a study of what is a valuable purpose of life is ethics. And with this in view we insisted that we can ultimately come to a decision concerning the purpose

of education in no other way than by turning to ethics. Pedagogy itself becomes thereby a part of ethical inquiry. We must know what makes life valuable in order to find out where we ought to lead the child, so that he may be prepared for a valuable life.

No chance prejudice, no traditional belief, no party creed, not even common sense can give us a thoroughgoing answer. But we went still further and insisted that no mere study of facts, such as child study or psychology, can give us an answer to our ethical problem either. We showed the meaning of this claim by a few practical illustrations, but these alone, of course, do not prove its correctness. Such a claim demands careful examination. It may be arbitrary; we have no right to accept it untested. Our own clear thinking must lead us forward. Hence, we want to inquire carefully whether the study of any facts can tell us what man ought to aim at, and accordingly where the child ought to be led.

The usual view is that we can find the ends and aims of a valuable life, and then the ends and aims of education, by studying the facts of nature, of mind, of society. Biology, psychology, and sociology seem to furnish the data from which we may deduce the true aims of education. On the other hand, we have insisted that no science of facts can show us any aims and purposes; no science of facts can ever tell us what we ought to do. At the first hearing this sounds absurd. Do we not continually study facts in the interest of our practical endeavors? The engineer studies facts of physics and chemistry to find out how the manufacturing or mining plant ought to be built. Who shall dare to discourage the teacher from studying in the same way the facts of the child's development and surrounding, in order to make sure how the child ought to be treated?

But let us distinguish. Does the engineer really learn from the facts of natural science what end he ought to pursue? Not at all! The sciences teach him exactly this: if you want to reach this end, you must consider these and similar facts and these and similar laws—but whether you really care for this or for the opposite is your own business, and that you must settle beforehand. And you must settle it from motives which lie outside the system of your so-called facts.

The bridge builder, for instance, has learned his physics and thus knows all the laws needed to calculate the structure of a bridge, if the two banks of the river are to be connected at this spot. But no physical law can teach him that a bridge ought to be built over the river at this point. He knows that a cantilever or a suspension bridge is the right structure in case this location is selected, but in the selection economic purposes must decide. Perhaps the bridge is to be near a certain town or near a railway station, where it is desirable for purposes of trade and commerce—and that is not a question of physics. In the same way the geologists may show from all their knowledge that a tunnel between England and France is feasible, and the engineers may work out the finest possible plans—the facts of nature cannot help in the decision whether it is wise for England to give up its proud isolation and to allow a tunnel to pierce the natural barriers of the island. In reality the sciences never teach the engineer what he ought to do, that is, what ends he ought to strive for, but only what means are serviceable for certain ends. Economics, and not physics, decides as to the bridge; politics, and not geology, decides as to the tunnel, and ethics, not psychology, must decide the ends to which education has to lead the child, however often superficial educators may believe

that in their field the selection of the end is a matter of course and needs no previous investigation.

And it cannot be otherwise; a very simple consideration can convince us that science would destroy itself if it made any undue pretensions here. To decide in favor of an end, an aim, a purpose, means to declare that this one end is better than another end, that this aim is more valuable than another aim, that this purpose is more worthy of our will than another purpose. But if there is anything included in the conception of science itself, it is the strict recognition that in the world of scientific facts nothing is good or bad, nothing valuable or valueless, nothing worthy or unworthy: about a fact of science we can say only that it exists.

To be sure, a loose way of speech in scientific discussions often allows us to forget that this is so. No scientist would hesitate to speak, for instance, of development; the development of the earth, of the world of animals and plants, or of the single individual stands fairly in the center of the facts of science. And yet, it is an illusion that the scientist really finds development among his naturalistic facts as such. Rather, by the use of that word he smuggles a conception into his own field, which is certainly convenient for him, but which is ultimately brought in from the other domains. Development and progress are given when something worse is changed into something better. But who gives the geologist the right to say that the earth in a glowing liquid state was worse than the earth with a solid cooled-off crust? And who gives the biologist the right to maintain that the invertebrates are worse than the vertebrates, or the grown-up organism better than the fœtus?

All that the naturalist really finds is that a simpler

state is transformed into a more complex state, or a loosely connected material into an organized system. He leaves his real ground when he asserts that the complex is better than the simple. Of course the naturalist will tell you that everyone understands what he means by it; he wants to say that the change, which he calls development or progress, is the change which leads the earth to becoming the domicile of life, which leads living being up to man, and man up to effectiveness and civilization. Yes, we understand it well, but we insist that all this is no longer science of facts. From the standpoint of facts, from the standpoint of scientific description and explanation, the living and the lifeless are two different groups of substances—the one is not better than the other, as the dog is not better than the jellyfish, or the jellyfish not better than the infusorium. The florist loves his tulip and hates the weed; the botanist who describes and explains does not and, from his standpoint, cannot hate or love anything; the weed is to him as real and, therefore, as important as the most beautiful flower.

As soon as we decide to consider ourselves and our civilization as the goal and purpose of the universe, then, of course, everything is changed at once. Then civilized life is more valuable than savagery, man more valuable than the lower animals, living beings more valuable than lifeless molecules, cosmos more valuable than chaos. And if the one is more valuable than the other, of course it is quite correct to call the change from the worse to the better a progress. But such a decision remains fundamentally a free decision, a preference, an act of our will. We may have no doubt that we ought to prefer man to beast, life to chaos, but the preference is independent of the mere study of nature, which furnishes us only with the cold

facts that beast and man exist, that a lifeless earth preceded life, and so on. To proceed from the statement of indifferent facts to a decision in favor of a thing which we call more valuable than something else, means to change altogether the point of view. The one is descriptive science and the other is the expression of will and desire; the one records what is, the other proclaims what, in our opinion, ought to be. The latter alone shows us the aims; the former gives us merely facts which might be useful to reach the goal as soon as we have chosen it.

CHAPTER IV

THE ASPECT OF SCIENCE

Is it a mere chance that the sciences of facts are so cool and neutral and abstain from partisanship in favor of or against any purposes and ends? Not at all; on the contrary, here we find the deepest meaning of science. Science is just that aspect of reality which abstracts from all preferences, likings, and dislikings. Science considers the world merely as an indifferent system of connected things. The complacent philosophy of common sense is not aware of this fundamental truth. Common sense fancies that the sciences are a kind of copy of the immediate reality of life.

But if we stop to think at all, we must quickly be aware that this is a trivial view. What our life experience is, everyone can find out for himself; no special scholarship is needed for it; nothing can be more immediate, nothing more certain, nothing more real. And does science really try to hold it and fixate it in its freshness and in its purity? Never. Science is not a mere copy of real experience, but it is experience seen at a special angle. It thus demands a reshaping and remodeling of that which is given to us in life. The abstractions of the scientist go so far that he finally ends where it is entirely impossible for any real life experience to follow. The physicist may tell me that the drop of ink which at this moment flows

from my fountain pen is made up of millions of atoms, each of which is without color and shape. No one has ever seen such an atom, no one will ever see one, no possible experience can become aware of it; and yet it is a true scientific fact. There is no contradiction here. We must only give up the naïve view that science really seeks to be a photograph of pure experience.

In our true experience of life we know ourselves and our neighbors as centers of will and decision; we like and dislike, we love and hate, we agree and disagree, we choose and reject, we attend and ignore; in short, we act. Things are merely the material for our acts. In such real experience the drop of ink which comes from my pen is not the play of millions of atoms, but is the ink which I need for writing down my thought and which I prefer to other kinds of ink. Our whole life is such a chain of will acts and interests, and all that we meet is means and aim for our interests and purposes. This kind of pure reality must be left behind when we construct the sciences with their particular truths.

Their truths do not take and do not attempt to take life as it comes to us, but as it must be viewed in the service of certain ends. And it is easy to see what ends are in question. If we want to make use of the things in the world, we must know what they are in themselves, not only what they mean to us and what they are for our will, but what they are independent of us and our interests. Hence, we must look on the chaos of things with the special aim of finding out what they themselves contribute to our experience and how they hang together without reference to us. To do this, we must consider them as objects, which are cut loose from our will and interest. As soon as we deal with the things of life as if they were nothing but mere

objects, they interest us only with reference to their connection. Their relation to us, to our feeling and will, is then ignored and omitted. We call this connection of the things among one another causality. To understand these connections we must seek their parts, and finally their elements.

All this is artificial; life itself is left behind, because in life itself we are never such passive spectators, and the things are never so cold, neutral, and indifferent, and we do not care for their elements, because we are interested in their meaning instead. And yet, it is life itself which requires us to take for certain purposes this strange, artificial attitude, as if we did not care for the things and had only to dissect and study them. As soon as we accede to this demand, we are proceeding scientifically. It is science which in its descriptions and explanations shows us all the elements and causal connections. Science enables us to know the things in their own connections, and by this we become able to use them. But just on this account the scientist has on principle given up the original relation of the things to our own will.

Now we understand why the descriptive and explanatory sciences can never speak of anything as good or bad, as valuable or worthless, and why every reference to what we ought to do in the world lies outside of their realm. It is because their whole right to existence lies in this resignation. They have once for all taken as their particular metier the task of dealing with the world as if it were only a world of indifferent objects, and therefore it remains for all time impossible that they should find in that world anything which is not indifferent. As soon as they say one event is more desirable than another in that world of scientific description, they have become disloyal to the

mission in the service of which they are pledged. Their whole meaning is just the abstraction from all such preferences and values. The values and preferences and aims and purposes are certainly real; they belong to the immediate reality of life—but science has eliminated them and must leave them out if it is to perform its particular task.

When we rightly understand this meaning of descriptive science, we are led to a sharp separation between the question of the "is" and the "ought." Of course this must also hold true for the sciences which deal with social and mental facts. If we are to describe and explain these facts of social order or of individual experiences, we are again bound to take them as facts only and to abstract on principle from any preferences. As the botanist cares no less for the weed than for the flower, the science of mankind cares for human foolishness no less than for human wisdom; all is material which must be analyzed and explained, without passion and without partisanship. The most noble deed is from this point of view no better than the most hideous crime, the most beautiful sentiment no more valuable than disgusting vulgarity, the deepest thought of the genius not to be preferred to the inane babbling of the insane; all is neutral material which has only the one claim, that it exists as a link in a chain of causal events.

The emotions which these facts awake, the attitudes which they induce, are themselves nothing but passing facts; we have to register our pleasures and dislikes, our enthusiasms and pains, as indifferent facts within us, just as we notice sunshine and rain without. The struggles of nations and races, of religions and parties, then come to us as mere facts like the movements of the waves in mid-

ocean: complex facts, perhaps, too complex to be fully explained from the known causes. Whether the one party will win or the other, whether a nation will rise to power or sink down and be forgotten—as scientists we cannot study it otherwise than the problem whether the wave in the ocean will swell or fall. Whether the events to come are political or personal, social or psychical, the scientist remains a scientist only if he handles them as if calculating the next eclipse of the sun. "It will come" is all he can say; "it ought to come" is on his lips an absurdity.

To be a psychologist who has to describe and explain the mental facts, thus means to consider certain facts; namely, those of the inner life, in an artificial way. Just as the physicist, as we have seen, does not deal with the things of nature in the simple and direct way in which the things are given to him in immediate life experience, so the psychologist does not deal with the inner occurrences in the natural way of life. He, too, considers everything as if it were a procession of facts passing before a neutral spectator. That spectator the psychologist calls "consciousness." It is consciousness which is passively aware of all those changing ideas and feelings, volitions and memories, emotions and imaginations and impulses. That is, indeed, a difficult abstraction. In real life this is all activity of ours; we do not feel ourselves in life as mere spectators of our own struggling emotions and ideas; we are taking active attitudes and know ourselves and our freedom through these very attitudes. But the psychologist has left his starting point of pure experience and for his scientific purposes asks only: What is all this if I consider it calmly as a group of objects? What are their elements, what are their connections, their causes and effects and their laws? One mental state is, therefore, as a

psychological fact, never more valuable than any other mental state. No psychology in the world can prescribe to us what mental experience is preferable, and that means that no psychology can suggest to us of itself what we ought to select as our purpose. Whenever a science of facts insists on doing this, it is guilty of logical dishonesty; it claims that which does not belong to it.

Such logical corruption as this goes on everywhere about us to-day, too often unnoticed, but never without peril to the intellectual life of the time. The harm done may not be felt at once, and it may often be very difficult to recognize clearly the exact point where the confusion and overstepping begins, but no mixing of principles can remain without consequences. One-sided reform movements, eccentric social schemes, overconservative and overradical agitations are working for the most part with just such equivocal arguments; they single out a few facts which represent a tendency in a certain direction and then make us believe that the facts demand a further move in that direction. What a confusion of social ideas, for instance, has followed after Darwin's discovery of the biological struggle for existence. The facts showed that in nature the strongest survive. At once it was urged that, therefore, our social life must be reformed in such a way that everything shall serve the survival of the strongest: the production of the superman appeared to be the goal. But the facts alone cannot give us a goal. They can never tell us in what direction we ought to move. It may rather be our duty not to press on along the line on which nature has moved in the animal kingdom, but to begin a new line with human civilization. It may be our true aim not to make the strong survive at the expense of the weak, but rather to support the weak and to protect him against the

brutal power of mere strength. No observation of mere facts can settle this dilemna. Whether our civilization ought to follow the blind, natural evolution or to overcome it by a purposive striving for new ideals is a question which must be fought out with arguments which lie entirely outside of biology or any other science of facts.

CHAPTER V

ETHICS AND THE WORLD OF PURPOSES

Now, at last, we stand before our general question: what ought to be the purpose of life and, accordingly, the purpose of education? The examination as to whether the knowledge of facts can furnish us with such purposes was our first task. It ended with the negative result of showing that the physical and psychological sciences cannot lead us to any decision as to purposes and ends. But purposes and ends we must have. And, therefore, we turn away from the sciences of facts and ask advice of ethics.

Some one might interrupt us at the start. He might argue about as follows. You speak of ethics as if it were outside of the natural and psychological sciences; that is unreasonable. All the ethical inquiries deal also with such biological and mental facts. For instance, we can study what actions and motives have been valued in the development of mankind, what deeds have been esteemed or despised by the various nations and the various epochs. Or we may ask what actions correspond to our human nature, or are suited to the conservation of the organism, or to the well-being of the greatest number. All these are, after all, questions of mental and social and biological facts. But such an argument is misleading. To find out what has been prized or blamed at different times and places may belong to the preparatory work of ethics, but

is not ethics itself. What others have done can never decide the question of our conscience what we ought to do.

Also that group of inquiries concerning the means of welfare leads us no further on. That a certain act serves our well-being, or serves the well-being of the greatest number is, indeed, a scientific fact which we may study by observation. But the question is just whether we ought to serve our own pleasure, or, perhaps, the pleasure of the greatest number, or whether we ought to seek quite different aims. Ethics becomes biology and social psychology only if we silently take for granted that we have no other obligations than to do what is agreeable to us. Now that may be a wise or a foolish ethical doctrine; it is certainly a definite doctrine which may be accepted or rejected. But whether we ought to accept or reject it, cannot be concluded by mere observations of facts.

What in the world can give us any foothold for further inquiry if we cannot gain the necessary advice from the physical and psychical facts? Here we must recall what we found in our discussion of the meaning of sciences. We saw that the sciences of facts do not give us and are not required to give us the full immediate reality of our life. We saw that science deals with abstractions. Every science expresses only a certain aspect, and what we call facts of science are descriptions of certain special sides of our real experience.

We recognized clearly that the scientists are interested only in the objects which we find, and furthermore interested in these objects only in so far as they hang together with each other. But we saw that our life is endlessly richer. In the least bit of our experience we find not only objects, but we find will and attitudes. Our primary interest really does not lie in the scientific question

of how the things are connected with each other, but in the practical aspect of whether the things satisfy our will demand or not, whether they are valuable for us, whether we like or dislike them. We saw that science had to disregard such questions of preference. But that does not deny the importance and reality of our will and its purposes.

Life in its fullest reality, as we really experience it, is accordingly moving in a world which is very different from that world of scientific abstractions. Of course we can look on anything in the world with the eyes of the scientist. The child who laughs at my side suggests to me that I be happy with his joy; I try to understand his will. He does not come in question for me as a physical or psychical thing. We are happy with each other, and in that intimate relation neither my pleasure nor the child's joy are something which need description and explanation. The child and I understand each other in spite of the fact that we both altogether disregard all that the naturalist or the psychologist would observe in us. What we both will only requires to be understood in its meaning. There is no need of making it an object of analysis and of searching for its elements and for its causes.

Indeed, the same is true for any human relations. We adult persons want only to understand one another when we talk to our friends. We may agree or quarrel: if we take ourselves in our life reality, we feel ourselves as will, with its like and dislike. Thus it is entirely superficial to say that there is nothing in the world but physical and psychical things. On the contrary, the things, as physics and psychology view them, give account only of a special aspect of life reality, and if we want to understand life as we know it in every act and interest, we must go back to that which we really experience. That does not detract

in the least from the truth of those scientific studies. It only points to their one-sidedness. If I am a chemist I may very well consider all the chemical substances of which Theodore Roosevelt is composed. But I must not imagine that I understand the great President better by knowing the percentage of fats and albumens in his organism. We must not even think that there are in a way two different worlds, one of science and one of life. No; the world of life in which our will interests and our purposes, our means and aims are lying contains and embraces that whole world of scientific abstractions. In dealing with the things practically our will makes use of all that which scientific knowledge furnishes us.

As soon as we understand the reality of these will relations a wide vista lies open before us. But it is true that it needs a certain effort to reach this life reality with full understanding. It is indeed most curious how easily most people lose hold of that which is, after all, nearest to them. They become so accustomed to looking on everything with that particular interest of scientific school knowledge that they finally forget how one-sided such an aspect is. We sometimes find in the asylums pitiable cases of patients who are impelled to count everything which they see. If they enter a room, they do not think of the chairs as something to sit on, but they are interested only in counting their number. We all are slightly under such a strange impulse to confine ourselves to a particular way of looking on the world as soon as we begin to think about it. We may not, like those patients, count the experiences, but we treat them as if they are only what the abstractions of science make out of them, and in this way we lose the vividness of our life relations.

As soon as we grasp the will character of our true life

we easily understand that in this realm, also, very important inquiries may be carried through. For instance, wherever an interpretation or an appreciation, we can almost say wherever a true understanding is aimed at, we must turn back to these realities of life and will. Let us make use of the technical terms, and let us say: All the knowledge of the scientist, whether it deals with physical things or with psychical things, is a causal knowledge. There we are always interested in the causes and effects. But this other kind of knowledge which refers to our real life is a purposive knowledge. Here we are interested only in our aims and purposes and in the means of reaching those aims.

The purposive knowledge is, indeed, very extended. For instance, a lawyer who interprets a law is not dealing with things and their causal aspect; he deals with an expression of will, the judge's will or the legislator's will, and he now interprets the meaning and purpose of that will. Or the æsthetician who appreciates and judges a work of art or literature or music sees in those things of beauty the expression of a meaning and will, and he states his own attitude and understanding of that will. Yes, we may even say that the historian ultimately must deal with just such will acts. The historical personality comes in question as such a center of will which decides on certain ends and acts. Real history is a world of such will relations—the world in which purposes overlap or clash. We must really give up the narrow-minded fear of becoming unscholarly when we give account of the world in other terms than in those of causal sciences. We must learn to understand that our deepest interests can be helped only if we do justice to the purposive reality. There we are nearest to life.

Then the study which seeks to understand the aims of life, the study of ethics, necessarily moves in this sphere of purposive knowledge, and, accordingly, there also moves the search for the aims of education. If ethics and pedagogy attempted to work within the limits of psychology, dealing with inner life only from the point of view of science, they would soon be at the end of their powers. Life would pass by and they would look on at a procession of facts. Nowhere would there be a suggestion of the end which ought to be striven for. The result would be an aimless, shiftless, haphazard existence, without ideals and without inspirations, the emptiness and the triviality which is the disease of our time. We must give up this narrowness and again reach life in its fullness. We must seek life's ends by going back to life itself, and not to its shadow pictures at which the causal sciences are gazing.

If we turn back to reality we find it composed of will acts, and every will act has its aim and its meaning. The outer world now becomes the means and the goal of our will, and the other men whom we meet are the centers of will. We love or hate, respect or despise. If we talk with one another, if we agree or disagree, if we enter the class room and become interested in the pupils, we are will for them and they are will for us. Of course we can artificially force on ourselves the other aspect; we can take the pupil at his task in the class room as an organism in which certain ideas, feelings, sensations go on which we do not interpret as a unity but explain as a bundle of elements. Yet life tells us that the child is to us primarily a personality with his own unity of will. As such we love him and care for him, as such we understand him, as such we want to develop him and to lead him toward the ideals of wise education.

Our life is will. Now at last we have reached the realm in which there is meaning in asking what will ought to be ours, what purposes are valuable, what aims make life worth living. Until we have really found these aims in the midst of the true life, every educational programme must be arbitrary and shifting.

CHAPTER VI

THE ETHICS OF PLEASURE SEEKING

We are now prepared to do justice to the aims of will, as at last we know that we must stick to the purposive aspect. We cannot hope for any help for the ethical inquiry from the sciences. We must simply ask: what satisfactions is our will aiming at? What do we want from life? What do we call valuable? Is one value better than another? Has one will or one purpose better right than another? Is one will or aim the one which we ought to will, while others are indifferent?

Of course life shows us an inexhaustible richness of aims. And let us understand clearly from the start that we have will acts not only where bodily movements are in question, not only when we are working or playing or speaking or writing. Our will acts may be internal. Whenever we affirm an opinion or deny a judgment, whenever we approve or reject a plan, whenever we like or dislike anything in the world, we take an attitude and thus bring our will into play. If I sit at the dinner table, my will expresses itself not only by my sitting down and taking the spoon, but if I like or dislike that which I taste or smell there, that which I see or hear, it is my will which approves or disapproves. It is in each case a choice between two opposite possibilities. If I like this particular soup, I take a stand in favor of it and reject the opposite

attitude. If some one at the table makes a remark which I understand, I agree or disagree with it. Though I may not say a word, yet my acceptance of it or my disbelief is again a will act. In short, there is no pulse beat of life in which everyone does not behave purposively, however trivial and small the purpose may be.

For ethics to bring order out of such a chaos of purposes, it has usually seemed simplest to group them and to make a kind of hierarchy. There are less important and more important purposes. A thing which is valuable for a week is more valuable than that which is valuable for only half a day. That which is agreeble for the moment, even very agreeable, but which brings pain afterwards, is certainly not so valuable as that which has no disagreeable consequences. That which brings satisfaction to the will of two persons is nicer than that which satisfies one only. That which is valuable without hurting anyone is better than that which gives pleasure to some at the expense of the suffering of others. In this way we indeed can work up a system of purposes in which everything is conveniently arranged in accordance with the strongest possible pleasure of the greatest possible number of persons. Thus we come to an ethics which is based on the calculation of the amount of pleasure. It is the kind of ethics which has generally formed the background of education. It has usually been silently accepted without much scrutiny.

Instead of pleasure, we might take another principle of arrangement. We might ask what purposes best serve the welfare of the organism. That which is damaging, that which injures man or his progeny is an undesirable purpose. Only those aims which ultimately help toward the greatest possible success of the greatest possible number of human organisms are really valuable. But practically,

whether we speak of pleasure or of success, we have made no change—both belong together and we come to the same grouping of human purposes.

But some one may ask: Why did we make this detour through the field of will and purpose, as such a scheme of grouping our values might just as well be reached, and has been reached a thousand times in the midst of the fact knowledge, in the midst of physics and psychology; in short, in the midst of that world in which everything is looked upon causally. Indeed, every psychologist can easily find out what will produce pleasure and what pain; every biologist can find out what will be useful for the organism and what injurious. If ethics cannot teach us anything but the grouping of our will purposes with reference to pleasure or to success, we should certainly do more wisely to seek all information simply from the sciences.

We have no right to say no to such an objection. Of course the sciences as such can say only: this will be helpful and this will be injurious, this will bring pleasure and this pain. From their own account they could not say that it is better to seek that which is pleasurable than that which is disagreeable. But let ethics once give such a cue and scheme, let ethics once for all decide that the aim of life is pleasure or is physical welfare, and then everything can be quickly settled by the verdict of causal knowledge. We have only to seek and to calculate the effects which will be produced. Education itself then becomes subordinated to the pleasures which man is seeking.

However often such a goal may have been silently accepted, we must reject it with earnest indignation. The kitchen may select its sauces to bring pleasure to our tongue, the vaudeville house may try to flatter our senses,

but the school room certainly has a more important mission than to endeavor to find how it can bring to us the greatest amount of pleasure. Do not say that it is not the pleasure in the school hour itself, but rather the pleasure in later life, the pleasure which spreads out which the teacher provides. The principle is not changed by that. To put the strength and effort of a whole personality into the one purpose of serving the desire for pleasure ought to be humiliating for every serious-minded teacher. No wonder that the teacher's profession seems so cheap and low and discouraging to a large number of the teachers themselves. It is drudgery—yes, it is slavery—to work hard merely in order that those boys and girls may have pleasure and be amused as much as possible through all their lives. No wonder that the faces of our school-teachers look so haggard and worn and nervous and depressed, if their whole life is nothing but an unending effort in order that people may have more fun and pleasure in life. If the pleasure idea encircles the efforts, then nothing else remains to them except to seek in exchange some pleasure for themselves. But then they discover that their work is hard and ungrateful, and that their pay, for which they might buy the pleasures of the world, is miserably small and meager. Truly, they have chosen the hardest lot on earth!

Worst of all, it seems so utterly useless and utterly hopeless. If we give our best to build up in a hundred children clear thought and rich knowledge, æsthetic appreciation and moral inspiration, the love of all that is high and dignified and beautiful and glorious, do we really fancy that the total sum of pleasure that will come to them will finally be greater for the average than if we had left them in their vulgarity and stupidity and carelessness and brutality? The woman who enjoys the treasures of liter-

ature has no more pleasure from it than the other who enjoys only her chewing gum, and the man who devotes his leisure hours to the best thoughts of serious authors does not gain more pleasure than the other who wastes his time in a disgusting saloon. Yes, the whole story of mankind, then, seems like the most absurd effort and civilization like the silliest blunder. Has mankind at the height of the twentieth century really more pleasure than the savage tribe in the bushes? Has the man who is burdened with the responsibilities of highest culture really more pleasure than the shepherd who lies in the sun, and does the shepherd have more fun than the dumb beasts around him? Has not every step in civilization meant new difficulties and new problems, new conflicts and new responsibilities, new labor and new hardship? If pleasure is the goal, let us escape from civilization, let us throw off our proud achievements and let us learn from the herds on the meadow, which live for their sensual instincts.

How could it appear otherwise? Not much psychology is needed to know that all pleasure and displeasure feelings are relative. The fact that everyone feels pleasure and displeasure only with reference to that to which he is accustomed and which he expects is, after all, the greatest comfort. The poor man can have more pleasure from the smallest trifle than the rich man from a large gain. However high or low the average level of our life may lie, our pleasures and displeasures count only from that level. Our civilization may bring us to a higher and higher level. Our comfort and our grief will in the general average always remain the same, as they do not indicate anything else than the fluctuations from the middle point. The spoiled child of the millionaire has no more pleasure from her phonographic doll than the laborer's child from her home-

made rag doll. Even if we abstract from this superficial difference of mere wealth, and point to the essentials of life, there is no more pleasure and no less discomfort at the height of civilization among the best educated and most highly trained men than in the lowest gang of corrupt scoundrels. The mechanism of the mind takes care of that; the chances of fate and the caprices of life and to a high degree the differences of temperament must cause much difference from man to man and from neighbor to neighbor. But the history of civilization has not changed the general average for mankind, and the school education has not changed the general average for individuals.

Of course you say at once that the pleasure has become better, richer, and higher, that the joy of creation is endlessly more valuable than the pleasure of eating. Indeed, exactly that is the case. But it indicates only that the decisive factor does not lie in the mere amount of pleasure. One pleasure stands higher than another, is more valuable than another. This means that we refer even our pleasures to a scale of values which in itself cannot be determined merely by the pleasurableness.

CHAPTER VII

THE TRUE VALUES OF LIFE

We look backward. If life and education are to be controlled by the search for pleasure only, education is a hopeless, useless, and meaningless task and the work of the educator cheap and empty. But is not the life we live falsified and distorted as long as we insist that nothing but pleasure can satisfy our will? There are other demands in us, and their fulfillment gives us a satisfaction of a different order. Only if we grasp this higher goal of life does the task of the teacher become important, imposing, and glorious. No calling is more wonderful in its aim, none more inspired in its meaning. The soul of every teacher ought to be filled with the blessedness of the work and with the joy of the achievement, and it would not be otherwise if they would at last see the purposes of life in their true meaning and could forget their misleading prejudices. Of course, if they gaze at the world as if the natural sciences could bring them the whole truth and as if man were nothing but the organism, nothing else can be expected but such a cheap pleasure ethics with its commonplaces of the greatest pleasure of the greatest number. But we had reached a different starting point. We saw that our will and its purposes have a more immediate reality, and that we have a right to seek that which is valuable in the world from our immediate life experience.

Hence we ask once more: what is really valuable? That is, what satisfies the human demand? So far we have spoken of only one kind of values—the pleasure values. After all, what demand is satisfied by them? What we seek in seeking our pleasures is a certain state of ourselves. We call pleasure that state of ourselves which we aim to continue, and displeasure or pain that which we aim to break up. The thing which we like because it brings us pleasure has no value whatever in itself. The thing which we dislike because it brings us pain is not worthless in itself. The one may please our senses, the other may hurt our senses, but it is our little, personal concern. The world is not better or worse by it. But is that really the only kind of values which we know?

Let us seek our way by comparing our purposes with our objects in the world. What kind of objects do we know? Some one may say red objects and blue objects and so on, or stars and stones and so on. Nevertheless they all belong together, they all form the one general class of physical objects. But besides them there is one other class to which the dreams and ideas and memories and imaginations belong—the psychical objects. Thus there are only two large classes of objects, the psychical and the physical. What is the difference between them? The psychical objects, as we saw before, are objects which belong only to one individual. My ideas are my own. No one can share them with me in my mind. My neighbor may have similar ideas, but each of us has his ideas for himself. On the other hand, the physical objects are objects which we all have in common. The mountain before me is the same mountain which anybody else may see and climb. I do not mean only that I can share that physical thing with a few friends. No. If I speak of a physical thing I mean something which is a

possible object for every man in the world. If we say that a physical thing has reality, what we have in mind is just this, that it must be accepted as an object by everyone. The landscape which I see here before my piazza is the real landscape because everyone who might be in my place would share it with me. The fairy landscape which I see in my imagination is unreal and does not belong to the true world because it is only an object for me. No one else can perceive its trees and flowers.

Can we not apply this principle also to the classification of our purposes, our will acts, our values? Have we not there also on the one side values which exist only for the single individuals, and on the other values which are meant to hold true for every possible being? To open at once a perspective, we ought to say: yes, this difference exists. There are values which concern merely the chance desires of the individual; they are the pleasures. There are other values which satisfy us without any reference to our chance personal requirements, because the demand for them belongs to every possible being. We cannot think a real being without it, and because such demands are independent of the chance personality, their satisfaction belongs to a class of values which stands incomparably higher than mere pleasure. Just as the objects which are common to all, the physical things form the true world as against the dreams and imaginations and hallucinations of the individuals, so the values which must be common to all form the true world of satisfaction, as against the haphazard pleasures of the individual man.

If I meet a man it may be my will to ask him for advice or to buy something of him or to enjoy his conversation; all that is strictly personal. I will it without the least expectation that some one else may will the same.

All that my will is seeking is my personal satisfaction, which means my own pleasure. But if I see a man whom I do not know in mortal danger, my will aims to help him. The purpose of my will is now the saving of his life. It is my own will, and yet this time I do not will it for my personal end, for my private interest, for my own pleasure. It is a will in me, the aim of which has no reference to my well-being, but to something which is of common value to everyone, the respect for human life. If I will to help and not to kill, to protect and not to steal, to speak the truth and not to lie, the purpose of my will is on each occasion independent of my personal pleasure and advantage. It may even be in conflict with my personal desires, and yet my will toward the painful sacrifice is strong. I do not lie and do not steal, even if my personal gain would be secured thereby.

But let us not linger on such a chance illustration from the moral field. How is it, for instance, with all that which we call knowledge and thinking? I seek the truth and I affirm the true judgment. I say two times three is six, and if some one suggests that two times three may be seven, I reject such a proposition. I do not will it; it does not fulfill my purpose. Yet, is that purpose my personal advantage? Certainly not! I will the true judgment because it is valuable in itself, not for my personal benefit. More than that, I mean by truth nothing else than such judgments which I will with the claim that every person must will them with me regardless of personal pleasure. The ancient Sophists tried to make the crowd believe that there is no such truth, which is valuable for all, and that any individual may call truth whatever fits his or his neighbor's personal purposes. But Socrates showed for all time the absurdity and the inner contra-

dictions of such sophistry. This pseudo-thought has not gained in value by being renewed in our own day by the "Pragmatists." Whatever they pretend, they themselves want to give us a truth and that means something that everyone who thinks at all has to accept as valuable. Hence, they themselves claim—in contradiction to their own principles—that there exists some real truth which has more than merely personal meaning. Of course the possibility that a personal pleasure may be added to the real value of the truth is not excluded. I may have personal advantage from knowing certain facts and certain truths, but the pleasure derived from my personal gain involved in the knowledge does not make the value of these truths.

We have exactly the same case in the world of art and beauty. To be sure, we may have a personal pleasure in seeing a painting or hearing a symphony or reading a drama; and yet no one has understood the meaning and mission of art who does not feel that the personal enjoyment does not constitute the true value of the artistic creation. We may as well derive pleasure from dancing and feasting, from fighting and sleeping, but the enjoyment of the tragedy and the symphony is upheld by the conviction that we are in contact with something that is more than our chance pleasure, something that must be valuable to everyone who understands the beauty of the world.

The case is not different with our politics and law, nor even with our practical profession and business. Of course we may work for a political party which gives us personal advantage at the same time, but the underlying, deeper will is certainly the will for reform and progress, for righteousness in the world. All our striving is meaningless if we do not feel in ourselves the belief that progress in the

world is better than regress, justice more valuable than injustice. Even our business is ultimately inspired by such a belief. Of course it appeals first to our personal interest, and yet the true spirit of commercial activity is instinctively conscious of a higher aim: the economic progress of the world. To master nature by technical progress, to make paths into the wilderness, to develop the treasures of the earth, to distribute them to those who need them, and to awake new needs in the millions for a higher and fuller life—all that is again a value which may inspire the humblest laborer and merchant with a belief in a higher purpose in the service of which he is toiling.

Thus we find in every sphere of human life two different kinds of will, two different kinds of purposes. There are purposes which are personal and which refer to mere advantage and pleasure, and there are purposes which we will without reference to our personal state. We will them with the belief that they are valuable in themselves, independent of the advantage which they bring to individuals. We accept them as will purposes for everyone and welcome their fulfillment as true values, without asking whether they are pleasant or not. A truth though painful is welcomed, nevertheless, as truth by our reason; the painful moral deed as well is welcomed by our conscience as a valuable act. Our whole life is thus penetrated by will acts which spring from a deeper source than the mere desire for the relief from pain, and the world is full of values which have a higher mission than to bring us pleasure.

We might stop here. It might be sufficient to point to this, and we should certainly be justified in building up on these facts of our life an ethics of a higher order. Our true aim is to realize those absolute values without ref-

erence to pleasure. Yet might we not dare to enter more deeply into the mysteries of these facts? After all, how can we understand that we will something which we do not will for ourselves, that we value something which brings us no advantage?

CHAPTER VIII

THE HUMAN IDEALS

HERE I erect a danger signal. We have found in our life experience purposes which we will and which yet give us no pleasure, values which satisfy us, although we do not desire them for ourselves. If we really want to understand what this means and what it signifies, we must turn for a while to hard, philosophical thought. Not everybody cares to climb up such a mountain in order to gain from the top the wider vista. Such a one may be warned beforehand. He should rather skip this philosophical chapter.

But there are too many who, hearing that philosophy is in question, fancy that this must mean a vague speculation. They think of old-fashioned metaphysics which had no reference to facts. But nothing of that kind tempts us. We have a very stubborn fact before us and we hate only the ostrich policy which does not want to see the difficulties. We all do acknowledge the value of truth and beauty, of love and peace, of progress and justice, of morality and religion. And it is surely no arbitrary question to ask what we mean by it. The reference to our or to anyone's pleasure, we saw, is no answer at all.

Of course we cannot really enter here into a full discussion of this deepest and central problem of human life. The great thinkers of all times have devoted to it their fullest energy. From the days of the classical Greek

philosophers to our own day, in which a new philosophical life seems to begin again, this question as to the ultimate meaning of truth and beauty and morality and religion, that is, as to the ultimate meaning of eternal values, has stood in the foreground. Each age has to answer this question in its own spirit. Our time cannot be satisfied by the beautiful answer which Plato gave to such inquiries; our time wants to analyze the facts carefully, and simply to accept that which the facts themselves suggest.

Let us consider the material of our experience just as we find it in our naïve life. Let us try to forget for a moment all that we have learned in our school knowledge and all that we have organized and harmonized in such life experience. Let us take the life material in the crude state in which it comes. It is a chaos, an infinite number of impressions, impulses and suggestions, of demands and ideas and things. Evidently, this chaotic material is of three different kinds. There is the stuff of which the things are made; secondly, there is our own willing; and thirdly, there are the demands of other men. All three kinds of elements are constantly flowing together. We feel our own will in our impulses and desires and agreements and disagreements; we feel the things which appear and disappear; and we feel the other men whom we understand.

Now, in this chaotic state all these experiences are entirely worthless; they are not a real world. Those things do not form an organized outer world, those demands and suggestions of others do not form an organized fellow-world, those rushing bits of our own will do not form a truly organized inner world. Everything is merely a streaming and swarming of passing chance experiences, flashes of life, waves of excitement, like a meaningless dream. On the

other hand, wherever we find something beautiful, or happy, or true, or progressive, or just, or moral, or holy, whether in ourselves or in other men or in the outer world, we call it valuable. We are completely satisfied with it. What has brought about the change? How has this worthless chaos of haphazard experiences become the material of our complete satisfaction? Have all these values nothing in common? If we compare their structure, can we find any one feature which characterizes all of them?

Indeed, such a feature is always present. We may state it at first in a very dry, abstract way. In every one of these cases we have grasped some bit of experience, have held it, have maintained it, and have found it the same in a new experience. Yes; we may make the sweeping statement: all of these values have in common the one factor that a certain element of experience asserts itself. It is maintained in the changing chaos. It did not merely come up to disappear, but it could be found again in a new state.

We must make this clearer. Let us take the case of knowledge which gives us the value of truth. The natural scientist furnishes us with the connections of physical and chemical processes, the historian gives us the connections of human deeds, the mathematician gives us the connections of equations, the logician gives us the connections of judgments; they all demonstrate connections to us. And yet if we really go to the depths of the situation, we find that all their so-called connections are only different ways of expressing just that sameness which we claimed for all the valuable experiences. What the naturalist really wants to tell us is how we must think of those particular changes in order to understand that all those atoms in nature remain always the same, that no particle of substance has disappeared and none has appeared anew, that everything is

only a going on of the same elements of nature. These elements change their positions, but they cannot lose their sameness, they must assert themselves. If anything goes on in the physical world, the chemist has completely explained it for us if he can show us how all the elements in it and in the surroundings have only combined and changed their positions. But no miracle has brought anything anew, no miracle has made anything disappear, the coming and going of the things was only an illusion. In reality everything lasts. Now this alone is indeed the goal of natural science. Through two thousand years mankind has worked with the aim of understanding all the changes in nature as mere changes of position of the elements which we call atoms. All the special laws are only particular forms of realizing this ideal of a system of nature in which all the substances and energies maintain themselves, and thus remain the same throughout all the apparent changes.

It is not different with the historian or the logician or the mathematician. Their material is not things but will acts. All logic shows us that the premises demand the conclusions, all mathematics shows us that certain equations demand certain other equations. The real meaning is that what is willed in the premises is also willed in the conclusions. It is the same will, the same aim, which asserts itself and which is maintained throughout the changing expressions. What is meant by one group of equations is found the same in new terms in the resulting equation. In short, if we go to the deeper meaning of human knowledge, it shows itself everywhere as the endlessly complex effort of mankind to understand the chaos of experience in such a way that the single experiences may assert themselves. They shall not be swept away by every new pulse beat of

life, every will shall be found again in new expressions, every little thing shall be found again in new experiences, everything which comes up in the stream of life shall be maintained. Everything which is serviceable for this way of looking on the experiences of man is called truth. That which we appreciate in our knowledge, and which alone satisfies us in it, is that it allows us to overcome the chaotic character of our experience and to see in it a self-maintaining reality.

Let us consider another attitude toward life. We value not only the truth, but also the unity and harmony and beauty in the world. Yet what are unity and harmony but again the finding of self-assertion in our life surroundings or in ourselves? This time it is the recurrence of the same meaning, of the same intention. In the case of truth a single bit of experience is given to us, and we seek this same element throughout the changing experiences of life; in harmony and unity a manifold is given to us, and we are satisfied when we find that one part of it agrees with the other, or that all parts show the same intention. In friendship and love and peace we find the same will in the social manifold. In beautiful nature we find the same intention and suggestion in every line and color, in every rock and wave. In our own happiness we find this harmony and inner agreement in the manifold of our own desires and intentions. All this finds its reflection in the works of art. The painter shows us a spot of the world in complete self-agreement. Every part harmonizes with every other part. Unity is the one great secret of the realm of beauty. Literature shows us the life of man in this complete, restful unity. Even when in the drama the characters clash in the sharpest conflict, yet the drama as a whole is a unified manifold in which every part serves the aim

of the whole in perfect harmony. Every verse and every rhyme of the poem agrees with every other sound in it and with its meaning and purpose. In short, love and happiness and art alike show us a manifold experience in such a way that the one part is in its intentions the same as the other.

Let us turn to another group of human values. Our life experience shows us changes and actions. Every change seems to indicate that the thing which we have grasped is lost again and that something else has come in its place. Yet there is again a possible aspect by which the first experience maintains itself, after all, throughout the change, namely, if the change becomes the realization of that which was intended from the start. The acorn becomes an oak tree, but throughout this change the new fulfills only what the old intended. We value such a change and call it a development. In social life we speak of progress, in nature we speak of growth, in our own life we speak of self-development. The most important of all changes is the one in which a will transforms itself into action. Again we are satisfied, and the action which is performed shows itself as the same which the will really intended. If the will is that of the community, we value its realization as the lawful life of the state. It is lawlessness when the action is not the same as the real will of the social body, when the statutes are misapplied and violated, when corruption sidetracks the law. In the case of the individual, we value this realization of the real will as morality. If the individual prefers the pleasant effect to that action which he himself really wants as action, then we have an immoral deed. The thief prefers the booty to the honest action, but he does not will the action of stealing as such. In short, whether we appreciate the natural progress

and development or the law and the moral life, in every case we apprehend a change in the experience as one in which the final stage is the same as that which was intended in the first stage. The first intention asserts itself through its realization.

Thus we have three large domains of valuable experiences before us—the logical values of truth and knowledge, the æsthetic values of harmony and unity and happiness and beauty, and the ethical values of progress and development, of law and morality. But we may go one step further. Every one of these three types of values showed to us that one experience remained the same in another experience. Finally, does not just this hold for religion, too? Religion shows us that these various valuable worlds of truth and harmony and morality are themselves ultimately the same throughout. In the chaos of immediate life experience we find the apparent clash of what our demands for truth and for happiness and for morality bring to us. Through the convictions of religious belief the whole experience is imbedded in an all-embracing life in which the processes of nature and the happiness of the heart and the goodness of will are united and in which the world asserts itself and maintains itself as the same.

Hence we can grasp all those ideal values of truth and beauty and harmony, of progress and morality and religion under one formula. They all represent the same principle. At the bottom everywhere the demand is for the self-maintenance of experience. That which we really find in immediate life is a chaos; bits and flashes of loose life contents surround us. If that were the last of it, our life would be nothing but a dream. We should not really have a world. It would be a meaningless coming and going. Each bit of life would grow up and vanish.

All those efforts to find experiences which maintain themselves are therefore efforts to overcome the chance, dream-like character of life and to find a world. To give to our life the meaning of a real world of experience is thus the same as to seek among the fleeting impressions that which maintains itself and which recurs. Accordingly, we overcome the worthless, chance life by seeking that which asserts itself, and we saw that the self-maintenance of the experiences expresses itself in those various values which we analyzed. To seek truth and beauty and harmony, progress and religion means to gain a real world in place of a chaotic dream.

Now we see why these values must be valid for everyone: simply because everyone must will to have a world. If there were anyone whom we could think of as being satisfied with the blind swarming of meaningless experiences, he would not know any other purposes than the securing of that which brings pleasure and the avoiding of that which brings pain. But he would not share our interests, he would not care for truth and mutual understanding, he really would not take part in our world at all. We recognize as reasonable fellow-beings only those who will to find a world. For every reasonable fellow-being these values are therefore valid. He has no choice: he must will them if he wills a world at all. A world in which the experiences do not maintain themselves cannot be conceived. Whoever wants a world must therefore want those expressions of self-assertion in experience. Wherever he finds them—it may be the slightest bit of truth, the faintest ray of happiness, the smallest step of progress in any field, a moral action or a thing of beauty or a religious belief—there he must find a satisfaction, even if it does not bring the least personal pleasure. Those values are thus sources of satis-

faction for everyone whom we acknowledge as a reasonable being. In a more technical term, we may say that they are absolutely valuable. Their value is absolute because it is not linked with the chance pleasures of the individual, but simply fulfills that fundamental demand for a real world.

From here we can recognize what the aims of our actions ought to be. We saw that the actions of man are absolutely valuable only if they correspond and are the same as the deepest will of man: we called this correspondence morality. We are really valuable beings only if our actions express that which we are intending in our deepest, most fundamental will. Whatever else we may do in running after our pleasures has chance character and has no reference to the value of ourselves. We ourselves have absolute value only if our doing expresses our own deepest will. Wherever there is a conflict between an action which tempts us because it promises pleasure and another action which we will for its own sake, there we ourselves are valuable only if we perform the latter action. The first action was not really willed by us; we wished only the pleasant effect. But the action which we willed as such corresponded to our deepest demand; it must be fulfilled, if we are not to lose our own value.

Now we saw that our deepest, fundamental action is the will to find self-asserting experiences—that is, truth and beauty and morality and so on. Wherever the striving for such absolute values comes in conflict with our individual chance desires for pleasure, we lose our own true value—that is, we do not really remain loyal to our own will—if we yield to the individual desire instead of seeking the absolute value. Ethics teaches us what we ought to do. Now, we ought to do that which makes ourselves valuable, and we ought not to do that which makes

ourselves worthless. We saw that we ourselves become valuable if we fulfill that deepest will toward absolute values which is the will toward the real world. The absolute values thus become the ideals of man, the goals for his actions. In other words, we are valuable personalities only in so far as we help to upbuild the absolute values, and we are worthless in so far as our merely individual demands interfere with the upbuilding of the realm of values. Life has a meaning, our soul is eternally valuable, in so far as we help to erect and to realize through our actions of thought and of body the ideals of truth and beauty, of progress and morality, of happiness and love and religion.

CHAPTER IX

THE AIMS OF EDUCATION

We have seen that the ends of education can never be deduced from mere observation of facts. We recognized that we need a clear understanding of final aims before we have a right to approach the facts. The facts are our tools, with which we try to secure the desired effects, but we must determine beforehand what aims we want to reach. That led us to the world of will and purpose, but in this world of purposive reality we could not separate the question of education from that of human ends in general. We needed, therefore, the inquiry of ethics as to the valuable aims in life, and that inquiry had to be a philosophical one. Now we have reached its results. We know what we ought to do, because we know what constitutes the value of our life.

Our life is valuable in so far as it is devoted to the realization of the absolute values, and we recognized in what sense we have a right to speak of values, which must be absolute—that is, valid for everyone. These logical and ethical and æsthetic and religious values are the necessary ideals of every human life which seeks a meaning. To build up these values by knowledge and friendship, by art and life, by growth and progress, by industry and law and morality and religion is a common task of striving mankind. This is our task, not because it brings pleasure to

the one or to the many or to most, but because it is valuable in itself. It fulfills that one aim without which we cannot think of a world. It is the one will without which our life would become a chaos and a dream. No life can be valuable which does not help in the upbuilding of these values, and whoever interferes with this ideal task prostitutes his personality.

Education is the preparation for life. It is a large and a noble part of life itself, and yet it finds its particular aim and purpose in the preparation for the life which is to come when the happy school days are over. Hence the purpose of education is to make the boy and girl willing and able to help in the realization of ideal values.

What a different perspective has opened itself now for the work of the teacher! The teacher who drills the child so that he may become able to reap pleasures and advantages for the gratification of his personal wishes is nothing but a servant of man; the teacher who educates the child so that he may become a helper toward ideal aims is truly a priest of mankind. The one view humiliates the teacher, the other raises his work to the highest sphere; the one transforms his daily labor into drudgery and monotony, the other into a work of enthusiasm and inspiration; the one makes it marketable service, poorly paid; the other makes it a delight and an honor, which is abundant reward in itself. The former still prevails in the routine dealing of the profession and in the narrow view of the superficial community; the latter must take hold more and more of teachers and parents and the whole social body if education is to yield its noblest fruit.

Let us be sure at once that a complete misunderstanding does not set in. To prepare the child to become willing and able to serve the realization of ideals must not be un-

derstood as if it meant to subordinate all education to a merely moral education; to make the boys and girls agents for ideal purposes in no way means simply to make them good boys and girls. Morality as such is only one of these many ideal values. To make the youth a bearer of moral ideals is only a fraction of the educational task. We may say it in this way. Morality demands that we choose and realize the ideal intention. But these ideal intentions themselves do not for that reason necessarily refer to morality. Beauty and truth and progress and law and harmony are just as truly ideal aims as goodness. It is an ethical demand that we devote our lives to the upbuilding of the world of values, but there is no demand that we focus our activity on the ethical values. The direct teaching of morality may perhaps be left out of education altogether. And yet the child who is made willing and able to live for the human ideals has reached by it a moral value for his individual soul.

Furthermore, the term human ideals must not suggest the suspicion that the child is to be prepared for a life in a kind of higher sphere—a life surrounded by dramas and symphonies, philosophical systems and religious sermons. No misunderstanding could be worse. We saw that the human ideals are realized wherever that is preferred which is valuable for everyone and which, as such, is independent of the chance individual desires for pleasure. Even the most trivial truth, even the truth that two and two is four, is just as much an absolute value of knowledge, satisfactory to everyone who seeks a connected world at all, as the deepest knowledge of the greatest thinkers. The slightest and most modest step forward in the narrowest circle, a little improvement in the neighborhood, is just as much an absolutely valuable progress as the great reforms to which

leaders and heroes are called. The beauty of a little flower or the symmetry of the simplest little arabesque is just as absolutely valuable as the highest achievements of classical art.

Above all, not the slightest contrast exists between the idealism of life and the longing for true happiness. On the contrary, if the ideals of life are to be counted, certainly happiness cannot be left out; only it must be rightly understood. Happiness does not mean mere pleasure. All the pleasures which are nothing but the gratifications of personal desires, from the pleasing of the senses by candy to the gratification of our vanity by luxury, are indeed no ideal values, and therefore cannot belong to those aims for which true education ought to make man willing and able. But true happiness does not mean mere exciting of pleasure. True happiness is the unity of our inner life. If all of our strivings and experiences are in harmony with one another and the whole manifoldness of our inner state becomes a unity in itself, a moving equilibrium, in which new and ever new will acts harmonious with the conditions of life are unfolding themselves—then indeed true happiness is reached. The satisfaction which it brings has the same absolute value which perfect beauty has. Yes, happiness has its true place among the æsthetic values. It means the perfect beauty of the state of our soul, and the world is endlessly richer in its inner beauty by the fact that happiness glows in human souls. Happiness as a complete unity of the inner world thus corresponds to love and friendship and peace as the complete unity of the human manifold. To strive for pleasure is no ideal goal; to strive for the realization of love and happiness is a human aim of absolute value. Of course there is no contradiction between the two. Pleasure may enter as an element into

happiness and into love just as a personal, practical advantage may enter into our knowledge of the truth; but truth is not true because it gives us advantages, and love and happiness are not beautiful because they give us pleasure. Truth and beauty and happiness alike are perfect in themselves, and glorious is the life which serves their realization.

The ideal values also must not be misinterpreted as if they stood in any possible contrast to practical work and earning labor. The term ideal value must not suggest a kind of flabby, lackadaisical snobbishness. As in the case of pleasure and happiness, here, too, we have to separate what is simply individual desire from what has absolute value. Certainly much in the sphere of the market and commerce and industry is controlled by selfish desires. They are not bad in themselves. They do not necessarily interfere with higher aims, just as sensuous pleasures do not interfere with the true values of happiness and love. But the real impelling force which gives meaning and value to this life of market and industry is the ideal of progress; and no ideal stands higher. Whether we toil in the field or forge the iron, whether we buy or sell or invent or produce, we all are working toward the development of human society and the development of the things which man finds as material for his work. To master nature and to make it helpful to the purposes of rational beings is an absolute value of achievement no less than the achievement of law and morality. If it were only a question of pleasure, the long way through the history of civilization would surely not have been needed. But if we believe in the value of progress, then, indeed, it becomes a valuable aim to make two blades of grass grow where only one was growing, to open the land, to dig out its treasures, to

hold them and to form them and to distribute them, to awake new and ever new needs and to satisfy them. Commerce and industry then become no less fields of inspiration than social reform and political progress. They demand no less loyalty and devotion than the flag of the country or the cause of humanity. The humblest worker in the mill can do an absolutely ideal work if he is doing it in the right spirit. This whole social fabric of ours is only a gigantic mill and the eternal value of our work does not depend upon the question of whether the wheel which we have to turn is a small or a large one.

Education and school life now have their definite aim for us and this aim is the only possible one. No education is needed to make us willing and able to look out for the gratification of our personal desires. We do not preach that we ought to overcome them. From the lowest animal instincts to the complex artificial desires which grow up in us, they all belong to us and add to the manifoldness of our inner experience. But there is no need of learning them; they have no value in themselves. For our real valuable life they come in question only as far as they help or interfere with the realization of ideals. If they are antagonistic to the ideal aims, they are to be suppressed, if they help them, they are to be encouraged. Above all, they are to be organized in order that those individual desires may prevail which can be brought into harmony with the valuable purposes. But the fundamental aim remains to make the pupil willing and able to serve those purposes which do not lie in the line of his selfish longings. The animal in man will satisfy his hunger and thirst and his more complex desires, if he is left to himself: the ideal agent in man can find himself and can unfold himself and can prepare himself only through a true education.

Education is to make youth willing and able to realize the ideal purposes. Those two aspects need clear separation. The will alone cannot reach its end, the ability alone is without power. Every school influence fulfills its purpose only if it works in both directions. The young mind must be developed toward a greater and greater readiness to realize that which is valuable in itself instead of that which brings pleasure. To prefer truth and harmony and progress and goodness and beauty to error and discord and regress and selfishness and vulgarity must be learned in every pulse beat of education. But every lesson and every new insight must help also to make the child able to fulfill his task. His ideal will is ineffective if he does not understand the nature which surrounds him, if he does not understand the fellow-world which approaches him, if he does not understand the demands of his time and the technic of their satisfaction. He must learn how to fill his place and how to make himself serviceable to the common work, how to build up a life of usefulness in the forward movement of human progress, from the ability to earn a living to the ability to be a leader.

The mere learning is thus raised to a preparation for true culture; the drill is replaced by a preparation for serviceableness; the mere pleasure yields to that true happiness in which all strivings are perfectly harmonized; the cheap desires give way to a true self-development in which the deepest will of man, the will to a self-asserting ideal world, unfolds itself. The knowledge and the tastes of the child, his attitudes and his powers, his feelings and his emotions, his standards and his judgments are brought to a higher and higher level and he who entered, concerned only with his petty desires, goes out into the world as a worker for the ideals of life.

CHAPTER X

THE PERSONAL FACTOR

We have brought the work of education under one formula. This is not meant to indicate that education should be uniform. Everybody ought to be made willing and able to realize ideal values, but everybody is called to do it in his own way. We all are to serve the same task; and yet everybody's task is unique. No one is replaceable; no one stands exactly where his neighbor stands. To understand life, to become able to earn a living, to become prepared for a life of service, to participate in the progress of the community, to see the things in their truth and to appreciate their beauty must mean a different life programme for every child. The child who comes from a home of culture and refinement, the child who comes from the slums, the child who never saw a green meadow, and the child who never saw a paved street, cannot be educated after a uniform pattern. The education of the boy cannot be the education of the girl, the education of the intelligent and talented child must differ from that of the slow-minded, ungifted child.

But the differences do not end with the variety of conditions under which the child comes to school. Social factors must determine how long the child can stay there. The one may pass from the kindergarten to the doctor's degree of the large university, from the fourth to the twen-

ty-fourth year of life, the other can hardly afford to be kept away from breadwinning work until the thirteenth year, while each school year is crippled by the demands of the home. The one may enjoy the splendid equipment of the metropolitan school, the other must be satisfied with a modest country school. Yet still more important are the differences between the individual tasks which the life after school will put before the individuals. To make the child willing and able to realize ideal values means also to secure the subtlest adjustment to these later differences. The laborer and the farmer, the banker and the doctor all must help in building up the realm of values. But they are equally well prepared for it, only if they are prepared for it in very different ways. That which may serve one may be superfluous for another and even a hindrance for the next. In short, the surroundings from which the child comes to school, the talents which he brings to school, the time which he can spend at school, the work to which he is called after school must give an unlimited manifoldness to the shape of the best programme for his education.

Yet in spite of all this variety, there must remain the demand for a fundamental unity. We are all children of the same time, all heirs of the same civilization united with our neighbors by the same traditions, by the same laws, by the same hopes, by the same nature, by the same moral duties, by the same God. In the dealings of the day we may put much emphasis on the hundred things which separate us from other men, but after all they are the small things, and that which unites us is greater and more essential. The mill hand and the captain of industry, the servant girl and the banker's wife go through the masquerade of life very unequally dressed; and yet the same

sun shines on all of them and makes morning and evening, and the same year turns round and brings to all of them the hope of the spring and the sadness of the autumn. We all need the ties with the past, an insight into the present, and an anticipation of the future, we all need character, we all need liberty and law, we all need health and good will, we all need joy and beauty and truth and the respect for serious effort, the love of our country and the warmth of our home. And compared with all this it is only a small difference whether our historical knowledge leads back to George Washington or three thousand years further, and whether our mathematics ends with the multiplication table or with the differential calculus. Above all, the ideal of culture remains the same for all of us. One comes a few steps nearer to the ideal than another, but that which ultimately counts is not the point which we reach but the forward movement.

Yes, nothing could be worse for the educational system than if this unity of the national educational principles should have to yield to the mere variety of individual demands. Certainly we must have an adjustment to the personal tasks, but it must remain an adjustment on a common basis. Our time is by far too much threatened by weak concessions to individual fancies and desires. As long as pedagogy was backed by no better conviction than the idea of the greatest pleasure for the individual, there was no strength left to resist the pressure of the child's desire. Every little variety of interest, every inclination and disinclination could insist upon a particular programme which would give to everyone just what he liked. Every passing fad and every superficial mood of children and parents could control the educational workshop. But as soon as the deeper insight into the true domain of education shows

the relation of the school to the system of ideal values the unity of the work will again be more in the foreground. The likings of children are many; their duty is, after all, only one. It is not the task of the school to entertain the children; the true task of the school is to teach them to do their best. Thousandfold indeed is the material which the different men have to master if they are to fulfill their life tasks; and yet all this will be learned swiftly and gladly as soon as school has taught them the one great common lesson, that the best of life is work, and that work means effort. Nowadays too many leave the school with a smattering of rainbow-colored information; and yet they have not learned what they most need for their true life, the power to acquire and to master that which demands the effort of concentrated attention. They have learned by play, and have become unfit to learn when the play is over.

To no small degree the same holds true for the teacher as well as for the pupil. No doubt, every teacher's task is a particular one. An unlimited manifoldness of special interests and duties shades the work of the teachers. They, too, come from different conditions, with different gifts, with different dominant interests, with different preparations for different periods of service, with different anticipations. The high-school teacher with the college education may feel himself superior to the primary-school teacher who comes from the normal school. The male teacher may draw a demarcation line between himself and his female colleague, the teacher of natural science may feel as if his ways are widely parted from those of the teachers of the classics, and both feel as if they have nothing in common with the teacher of music or drawing or gymnastics. Social and local factors, age and training, and

salary and family may bring numberless variations; and yet ultimately they are all unimportant and insignificant. There exists only one great division—the teachers who are true teachers and those who are not. Those who are true teachers live and work and struggle and succeed in a faithful belief in the ideal values of their work. To them the souls of those boys and girls are like beautiful marble from which they have to shape ideal forms. With love and sympathy they forget themselves and live for those children whose happy souls have been intrusted to their devoted work, and in every lesson, in every word, and every glance they express that enthusiasm for the ideal which gives meaning to their difficult mission.

There must be many kinds of teachers and yet the true teacher is everywhere the same. Just as there are creeds and denominations without number, and yet ultimately one eternal religion at the bottom of all of them, so many forms of the art of teaching may be learned, but fundamental remains that one common belief in the absolute value of the teacher's mission. The loyalty to the ideal values of life for which a new fighter and a new servant is to be won with every new boy and every new girl who enters into the class room is the common faith of every man and woman in the school. Not everyone is talented and not everyone is prepared to be a successful teacher. The good teacher cannot know enough and cannot train himself seriously enough, and yet no training and no knowledge can be a substitute for that true teacher's attitude.

But we have no right to ignore the other side. Teaching is a practical work in which the means must be adapted to the end. Enthusiasm and the idealistic belief can only bring the powers into motion and furnish energy, but the means must be provided. The teacher must know what he

is to teach and must know how to teach it, and that involves his understanding the child and all the factors which come in question when the child is dealt with. Hence, the true teacher needs not only an understanding of the purposes and aims of education and an enthusiastic devotion to those ideal aims, but he needs a thorough understanding of the ways in which the mind of the child can be influenced and developed. Ethics could teach us only those purposes and ideals. If the teacher seeks insight into the means by which the aim can be reached, into the facts by which the child can be molded, his way must lead from ethics to psychology.

The knowledge of the child's nature and his personal tendencies, indeed, has not been made superfluous by insight into the ideal aims. On the contrary, if we want to bring a child to the realization of values, we must have the clearest understanding of the child's natural endowments, his gifts, and his possibilities, of the mental and physiological laws and the sociological conditions. Everyone has to serve the world of values in his own place with his own means, and this ideal task demands the highest degree of respect for the individual differences of men. Systematic effort on the part of the teacher is surely needed. To live according to nature, to follow one's own inclinations and interests, to satisfy the personal pleasures and thus to fulfill the personal purposes—and it is these which appear to popular prejudice as the only "natural" ones—no great effort is needed. Water flows downhill, anyhow, but to bring the water uphill hydraulic forces are indeed necessary. To overcome nature and instead to prepare for a life of ideals, to inhibit the personal desires and instead to learn to serve the higher purposes indeed demands most serious and most systematic efforts.

It is the teacher's task to make these efforts with all his best knowledge of mind and body, of social and of cultural values. Psychology and physiology, sociology and the subjects taught have to furnish him with the equipment for his great calling, but they all represent only the means, which are of no use until ethics has shown us the aims. Those means the teacher must master by study and knowledge, but those aims he must hold in his heart. They fade away if he does not believe in them with the sincerest conviction because, as we saw, those ultimate ends of ethics are not to be reached by knowledge but by decision of will. What aim he shall give to his educational work depends for the teacher, too, upon his decision as to what meaning he wants to give to life, and that ultimately depends upon his decision as to what kind of human being he wants to be. True teachers are those who have decided that life is worth living only if it is upborne by the belief in the ideal values. But if the belief is to become effective, it must work with the world of facts. Hence, we must now turn from the height of the general theory to the walks of practical life, but we shall never forget that these facts and schemes and plans which we now have to study are held together and made significant by our ethical life philosophy.

PSYCHOLOGICAL PART

THE MIND OF THE PUPIL

CHAPTER XI

THE OBJECTIONS TO EDUCATIONAL PSYCHOLOGY

At last we have found the aims of true education, but nothing would be more superficial than to believe that with the aims we know at once the means. Not seldom in life it may be almost a matter of course to recognize the right aims and yet most difficult to discover the fitting means. The physician, for instance, is never in doubt that it is his purpose to bring about the normal functioning of the bodily organs, and yet he needs a whole array of sciences to find the proper means to that end. For the educator the end is not at all such a matter of course as for the physician; we had to reject all kinds of pseudo-aims which suggest themselves and we had to go a long way through ethics to find our pedagogical purpose. But again, just as for the physician, it holds true that all the scientific knowledge of the day must be made serviceable to us in selecting our means and tools and methods as soon as the aim is recognized.

Here, to be sure, psychology has the right to the first place. Education, we saw, must prepare the child for service to the world of values. That service is a work of the soul, a work of intellect and judgment, of knowledge and emotion, of character and will. Accordingly, the most immediate material for the teacher's effort is the mind of

the pupil to be molded. In this demand for psychological studies all theories of education may agree.

Yet not a few difficulties meet us at the threshold. The teacher has to deal with the inner life of the child and has to understand it. But have we a right to say that the understanding of inner life is the same as the knowledge of psychology? Certainly not. And much confusion arises from overlooking this difference. When we discussed the standpoint of science and of ethics, we saw that we can understand the mental life in two ways. The psychological way of describing and explaining the mental facts is only one of the two possibilities. We saw that it is not even the most natural and most lifelike aspect of mental experience. The more immediate way to the mental understanding of our friend is to think with him, to feel with him, to will with him and thus to understand him by interpreting his meanings and intentions. This alone is indeed the way in which we approach our neighbor in daily life. When we talk with him, when we agree or quarrel, we understand one another by taking the standpoint of the other person and imitating his inner experience. Such interpretation of our friends is not psychology. It is a relation in which the other mind remains a personality in his full unity. Psychology, on the other hand, seeks to describe and to explain these mental experiences. It must divide them into parts and elements and classify them and seek their causes and effects.

It is clear that sometimes the one and sometimes the other way of understanding mental life must be preferred. I think of two extreme cases. In one I see on the street a child whom I do not know behaving strangely and I suspect that he is mentally deranged. At once I necessarily take the attitude of the observer, of the explaining psychologist.

I watch the special mental features, separate the single functions, observe the effects of various conditions on the emotions and feelings and ideas of the child and feel it my duty to follow his behavior with scientific carefulness. At the other extreme I think of how I talk with my own child in mental health and strength here in my room and the father's love reaches out to the happiness of the young soul. How absurd it would seem to me to observe this mind and to disentangle it into its different parts. My warm enjoyment grasps the young personality as a whole and feels with its emotions. There we have the attitude of a scientist, here the attitude of life, there impartial observation, here personal interest, there explanation, here appreciation, there search for causes and effects, here understanding of the unity of purpose, there psychology, here sympathy.

Between these two extremes there must be an endless number of steps and for the most part it will be quite possible to take either attitude toward anyone. I may discuss a question with an acquaintance and take the purposive standpoint as long as I am carried on by the interest in the point in discussion. I try to understand the meaning of his argument. But in the next moment I may be watching how the man's memory is working and how his attention shifts and how certain associations cluster together in his mind and how he inhibits certain ideas: in short, I may psychologize. And accordingly my own action, too, will change. At first I was anxious to convince by means of opposing arguments; logical purpose determined my reply. But as soon as I begin to analyze and observe my opponent's mind in a psychological way, I choose my words and suggestions in order to influence his various mental functions. I deal with him as if I were

handling a machine, I touch some ideas, strengthen some others, and suppress still others.

The teacher, too, can take both attitudes toward the children in the class room. For him these boys and girls are, on the one hand, personalities, for whose aims and interests he feels sympathy or disapproval. He is anxious to understand their very selves and their outlook into their little world, to enter as a friend into their pleasures and disappointments and to make them feel his own interest in them. And, on the other hand, he may consider them like a psychical mechanism, watching how the mental wheels turn, and studying how the best effects may be reached. If he interprets a great poem in the class room, he will be filled and inspired by the belief that his enthusiasm will kindle those young hearts, that his emotion will reach theirs, and his idealistic enjoyment of the poet will touch them the more deeply the more he looks on them as real personalities and sticks to the purposive attitude. On the other hand, if he gives them the same poem to learn by heart, he may rather ask himself how much their undeveloped memories can carry, whether their attention will be sufficiently held, whether fatigue has set in, whether they will do better to learn it line by line or to repeat whole stanzas, whether they will retain it better by seeing the verses or by speaking them; in short, he will now prefer to take the psychological attitude.

But the question arises: Is a teacher able to alternate between two such different attitudes toward the same persons? Of course we have to change our attitudes in life often, even toward the outer things. The tree which I see before my window may interest me by the beauty of its branches and its æsthetic harmony with the landscape. In the next moment I may be scientifically interested in these

same branches from a botanical point of view. Or I may consider this tree from an economic point of view with reference to its value as wood for the fireplace, or from a practical point of view as a fit place for my hammock. In this way we may easily change attitudes. And yet, is it not a well-known experience that attitudes become habitual and that training in one kind almost excludes or at least somewhat inhibits other kinds? Since the painter has trained his eye to see the trees from an æsthetic viewpoint and the naturalist has trained himself in the botanical attitude, it is most improbable that the painter will easily go over to the scientific view of trees or *vice versa.* But this suggests a grave problem. Can we hope that the teacher will remain able to alternate between the two attitudes toward the child? Will not the training in the psychological method of looking on the child disturb the natural attitude of love and sympathy and personal interest? Can we feel with the child if we are in the habit of observing him as a psychological mechanism?

We have reached a serious argument which psychological pedagogy has to face. From all sides we hear the cry that the teacher ought to know more psychology, but are we sure that the real success of this reform may not mean a defeat of the most important instincts in the teacher? As long as psychology means only dead text-book knowledge, it cannot interfere with the personal interests of parents and teachers. But if it becomes a really practical aspect, if the child and pupil is looked on as a combination of elementary mental functions and everything turns into a scientific calculation, then, indeed, too easily may the immediate personal relation of man to man suffer by it. The strong, versatile teacher may be able to combine both methods and to develop the one without injuring the other, but

the average mind lives in one-sidedness. Surely society cannot tolerate our training artificially the power of psychological analysis and at the same time drying up the springs of love and sympathy, of interest and enthusiasm in the nursery and the schoolroom. The turn to psychology should be taken with carefulness and moderation, unless we are to lose more than we gain.

Society should even take care lest the movement toward psychological training of teachers be responsible for another calamity. The schools of the country show too many serious symptoms of weakness and inefficiency; the community is anxious for a real cure of the evil and not for a superficial treatment of a few symptoms only. The diagnosis of the real cause of weakness is not always easy, but in most cases it lies, as far as the teaching staff is concerned, in the poor preparation of the teachers. They have not laid a sufficient basis of solid knowledge for their teaching; they give out knowledge at a stage where they ought to be taking it in. The cure which the social physician ought to prescribe is thus an uplifting of the whole intellectual schooling of the teachers. But that is a slow and difficult cure—and the public always prefers the quick and convenient patent medicines which for the moment abolish the outer symptoms, even if they do not help the disease. To lay a broad foundation of knowledge demands years—to pick up some psychology and pedagogy is a matter of months.

The war cry of the reformers for better pedagogical-psychological training of the teachers thus too easily diverts the public attention from the other reform which demands much more effort and sacrifice. The public is always satisfied if something is done which makes a quick showing. Hence, the common-sense desire that the teacher

should study psychology may become a fad which inhibits the progress in the real intellectual and scholarly training of the teaching staff. Of course, if the situation is well understood, here again the one does not interfere with the other. It is most desirable that the teacher should know psychology and understand the principles of education—and yet it remains at the same time desirable that he should reach the highest possible level of intellectual culture and that he should not be obliged to cram in a hasty way overnight what he has to teach the next morning. More than that, the better he understands the facts of psychology and education, the more he will himself feel the need of deepening his scholarship. The true solution is neither animosity and disdain for psychology nor enthusiastic belief that psychology and pedagogy can be a substitute for true scholarship.

The psychological study of the teacher is thus to be welcomed without reluctance only if it does not interfere, on the one side, with the emotional attitude of personal interest, on the other side with the solid training in those studies which the teacher is teaching. But if these two conditions are fulfilled, is the way to the practical application of psychology really open? On the threshold let us not underestimate the difficulties. To know the facts of psychology in the text-book form and to apply them to the particular boys and girls in the particular classroom in the particular recitation hour is a very different thing. To know physics is not to know engineering, and even to know engineering from a technical book is not to be able to enter into competition with a trained practical engineer. Mental life is extremely complex, and yet our psychological laws refer to the single elements into which the whole mind must be resolved before the laws can be applied. A certain

analytic skill and talent seems indispensable if confusion and arbitrariness are not to set in.

Moreover, the teacher works under most unfavorable conditions for a technical and systematic application of psychological laws. The first need for such a purpose is surely a certain insight into the psychical individuality. The children in the classroom represent widely different mental types, with different temperaments and capacities and tendencies and experiences and powers. To disentangle these individual differences seems the first step toward a successful application of mental rules. But the experimental psychologist knows well that such work demands all the most exact means of science. Long series of tests and observations are necessary to determine completely the "personal equation" of a human mind by the methods of modern psychology. It would too often be hopeless to expect such scrutiny in a classroom: the teacher has to rely mostly on general impressions, without subtler shades. Vague labels, like clever and stupid, industrious and lazy, good and bad memory, attentive and distracted, and similar generalities, are taken as the basis for the psychological work of the teacher, while the professional psychologist would discriminate a hundred varieties and degrees and peculiarities in every one of these tendencies.

With the vagueness of the starting point, on the other hand, the danger increases that the application of the psychological knowledge may be ineffective or even dangerous. Rules which fit one type of attention may ruin the work of some one whose attention is of a different order. We may dream of a future state in which a psychological expert will examine every school child's mind with all modern methods in a scientific way, just as the physician nowadays often examines the body of the pupil before he begins exer-

cising at the gymnasium. But at present the teacher has to be his own psychological expert, and, with his fifty or more pupils, can hardly hope to reach a mental diagnosis which satisfies himself under the conditions of the classroom in the overcrowded school hours. Thus, on the whole, he will confine himself to the use of those psychological facts which he can take over ready-made, as they fit in general without any subtle analysis. Many of the most delicate methods of science would be practically useless for his daily work, unless the classroom is to be transformed into a psychological laboratory. The teacher must be clearly aware from the start that he is confined to a rather crude and clumsy use of the facts which scientific psychology may offer in aid of pedagogical efforts.

But this finally leads to the most important question: Has psychology really accumulated a good store of such helpful facts? It is with regret that every sincere psychologist must answer: no, we are just at the beginning. What we have to offer is not to be despised; it is a fair beginning—but, after all, no more, as psychology is only just commencing to connect the theoretical studies with the practical interests of the community. At the first glance this seems surprising and disappointing, but it could hardly have been otherwise; and it is this slowness of the movement which insures its safe progress: all haste would have been dangerous.

CHAPTER XII

THE APPLICATION OF PSYCHOLOGY

When the public speaks of the "new" psychology as if it were a creation of yesterday, or as if the break with the past has been complete, it is voicing a shallow exaggeration. Plato had deep psychological insight, and Aristotle wrote a psychology which, in some respects, laid lasting foundations. Even the influence of the natural sciences on psychological thought is not a recent gain. It can be claimed that since the seventeenth century the mechanism of the system of nature was the model for the psychological speculations of great thinkers like Hobbes and Spinoza. The intimate relations between mind and brain engaged Descartes at the threshold of modern times and determined much of the philosophical work of the eighteenth century. Large regions of mental life were most carefully analyzed by men like Locke and Hume and Berkeley in England, or Leibnitz and Condillac and Herbart on the Continent. It would be folly to claim that the new psychology had to begin anew and arrogance to insist that our new methods have brought us to a height from which we can look down on those earlier achievements.

And yet we are accustomed to date a new period from about the sixties of the last century. There is no doubt that in these few decades more psychological material has been studied and more psychological facts have been dis-

covered than in the preceding two thousand years of the history of psychology. In these few decades psychology became an independent science, with full right to stand coordinated with physics or chemistry and to a high degree emancipated from speculative philosophy, under whose wings it had previously dwelt. The most decisive factor in this fruitful change was surely the introduction of the experimental method. Experiment had built up the wonderful edifice of modern natural science, while the lack of experiments had kept the science of antiquity and of the Middle Ages on the lowest level. Experiment had created physics and chemistry and physiology, and in the first half of the nineteenth century it led from triumph to triumph. But still it had not reached the mental life. Haphazard observations and chance experiences furnished the material for the psychologist, while experiment everywhere demands that the observations shall be made under artificial conditions, introduced for the purpose of careful observation.

The change did not really come from psychological quarters. The decisive impulse originated from without. It was a period in which physiology, the study of the bodily functions, flourished. The scientific study of the nervous system and of the sense organs made marvelous strides forward, and the functions of the eye and ear especially were brought into new light by the physiological experiments. Yet it is evident that experiments on the bodily eye and ear are necessarily at the same time experiments in seeing and hearing; psychological facts thus became, in a way, the by-products of the naturalistic researches. In a similar manner, physiological studies on skin and muscles brought with them experiments which referred to the mental functions of tactual and muscular sensations. Psychol-

ogists were thus furnished with experimental evidence which they had not gathered themselves, but which they no longer had a right to ignore. Even astronomy brought a new impulse. The astronomers found that they did not always agree in their records of observation in the telescope; the one saw a star a fraction of a second earlier than the other. Then they began to experiment on the question of how much time is lost by the mental action of perceiving and attending to the star and recording the impression by a registering movement. These experiments in the service of astronomy were the first by which the time of mental processes were studied; and here again the psychologist got from without an experimental suggestion, the importance of which for the analysis of the mind was clear.

Thus it seemed a most natural step when at last the psychologists themselves fitted up a workshop for making such experiments of psychological import on their own account and from their own point of view. That which had been a by-product of the naturalists was now to become the chief aim. The first of these laboratories was founded by Wundt in Leipzig, Germany, in 1875—it was the act by which psychology signed its declaration of independence. It was a modest beginning, but the development was rapid. The pupils of Wundt and their pupils carried the movement round the world. Every year saw the foundation of new laboratories, with better and better equipments. At present nearly one hundred university laboratories in all civilized countries minister to the progress of experimental psychology.

Yet, more brilliant than this outer development of the young, experimental science was the internal growth. When experimental psychology took its first steps, it seemed a matter of course that such work with instruments

in a laboratory would reach only the most external problems of the inner life—those which refer to the sensations and perceptions and motor impulses. But the real central functions of the mind seemed beyond the devices of the laboratory and open only to the traditional introspection. The work of the last three decades has led to a steady revision of this prejudice. The experimental method has conquered one field of the mental realm after the other. Experiments have been made on memory, attention, imagination, feeling, emotions, volitions, judgment, reasoning, æsthetic appreciation—in short, ever new psychical facts have been scrutinized with the methods of the experimenter; and to-day it may be said that there is hardly a mental state to the analysis and explanation of which experiment has not contributed its share.

Yet the work of our psychological laboratories, while it stood in the center of the great movement, certainly did not stand alone. The relations of the mind and brain were at the same time brought into a new light. With the discovery of the speech center in the cortex, a center which shows signs of disease when the patient loses the power of speech, the new doctrine of definite brain localization secured its glorious development. This was no longer the old, unscientific phrenology, but a systematic study of the special mental functions related to special fields of the cerebral nervous system. Parallel with it came the progress of animal psychology on the background of modern theories of evolution, and, still more revolutionary, the progress of abnormal psychology, with the deep psychological interest in the borderland phenomena, like hypnotism, and finally the more modest progress of child psychology and social psychology. Thus, from the sixties of the last century to the beginning of the new century the world witnessed a

growth of the new psychological science which was not to be compared with the slow and clumsy development of psychology in the two thousand preceding years. It is typical that fifty years ago there existed not a single magazine devoted to psychology, while there are fifteen such journals in the leading countries to-day.

Yet, the proud achievement of modern psychology was in one respect surprisingly narrow. It could hardly be called a conscious intention of the psychologist, and yet it seemed almost a purposive principle: the new psychology confined itself for decades to purely theoretical work, abhorring all concern with service to practical problems. We call it surprising, as, after all, the material has thousandfold connections with the needs of the day. Feelings and emotions, ideas and volitions, attention and memories enter into every sphere of human life, and yet those who described and classified and analyzed and explained these states did not care to ask whether the new insight and the new explanation did not yield any suggestion for practical help and improvement.

This is certainly not a matter for opprobrium. A sound, scientific policy demanded such a conservative method. It was absolutely essential that the fundamental investigations be made at first without any idea of later practical application. It may be and is unjust to denounce a science as utilitarian, or perhaps even as commercial, if it turns to practical problems; but the blame is fully deserved, if any science turns to practice before the theoretical foundations are laid. There is nothing more reckless than to take fragments of an unsafe, new doctrine and turn them into practical remedies. The wonders of applied physics and chemistry demanded the faithful work of generations of physicists and chemists, who did not dream

of the patent office, but simply tried to unveil the hidden laws of nature for truth's sake.

But now, at last, the time seems to have come when psychology may dare to approach the practical problems, too. As by a silent agreement, practical endeavors have suddenly been initiated from all sides within the past few years, and everything indicates that we shall soon have a real, substantial Applied Psychology. And then such an applied psychology would no longer be a mere heaping up of such bits of theoretical psychology as could possibly be utilized for practical purposes, but it would be a systematic studying and experimenting with mental facts from the point of view and in the interest of practical needs. Applied psychology would thus stand in just the same relation to the ordinary psychology as that in which engineering stands to physics. It would deal exclusively with the question: How can psychology help us reach certain ends?

We have said that the work has been begun on many sides. Important, for instance, is the well-known effort to utilize psychology for the purposes of law. No doubt it is regrettable that to-day the court trial, perhaps of a criminal case, is dependent upon the perceptions and memories of the witnesses, deals with the suggestions and emotions and volitions, and yet does not recognize at all that the psychologist offers expert knowledge for the estimation of the witness's capacities or of the mental states of the criminal. Psychological methods to measure the powers and the suggestibility of the witness, or to detect the hidden knowledge of crime, or to work toward prevention of crime, have been developed. In the same way the psychologist has systematically turned to the problems of health. On the one side he devotes his resources to the analysis of the mental fac-

tors in diseases, from a simple discomfort or dizziness or pain to the great disturbances of psychasthenia and neurasthenia, of double personality and hysterics, and finally of the mental diseases. The schemes and appliances of the regular psychological laboratory have disentangled symptoms which seemed vague and obscure from a mere medical standpoint. On the other hand, applied psychology tries to help in the treatment of the diseases. The acknowledgment of the mental elements in most pathological states of the body has spread rapidly. The influence of suggestion in the treatment of mental and physical disabilities has been recognized within the medical profession, and more still without. Modern psychology must turn this popular movement into scientific channels.

Similarly as in the realms of law and medicine, applied psychology works in the field of social life, of business and commerce, of labor and industry, from advice for the writing of advertisements or for success in salesmanship to the most complex problems of the mill or the railway. Again, in the realm of pleasure and sport, of fatigue and rest, of fashion and food, psychology may shape its suggestions, as well as in the whole realm of fine arts and poetry and drama and music. In this great movement toward the application of psychology, education, of course, from the first found an important place. In the service of education, too, special experiments were conducted, special observations were carried on. But it must be emphasized that it was indeed this new movement of the last few years, this systematic experimenting on problems of educational psychology with which psychology really took the turn toward pedagogy. Those preceding haphazard applications of psychological facts which had not been studied at all from the point of view of education showed the way,

but were entirely insufficient to build up an educational psychology.

Hence, educational psychology, a product of the last few years, is a new science which forms a part of applied psychology, together with legal and medical and economic and æsthetic and industrial psychology. It is therefore much younger than the theoretical "new" psychology, which, after all, has now had three or four decades of development. Educational psychology is entirely at its beginning, and is unable to offer any complete system of prescriptions or advice. As it had to wait for its start until the theoretical work of the psychological laboratories was fairly under way, it cannot compare with the richness of general psychology. And yet it must rely on its own resources. Simply to take over the ready-made material of general psychology would be useless. Psychology has certainly made thousands of experiments, for instance, on attention; yet it would be doubtful if any of these experiments could be carried directly over into the classrooms and conclusions drawn from them as to how the attention of the school children is to be secured. Those experiments were not carried on for practical purposes; they were made in order to understand the mechanism and the elements of attention, its physiological conditions, its relation to other mental states, and so on. It was necessary to vary these experiments in new ways and to make them serviceable for the teacher.

A start has been made, however, and, no doubt, from humble beginnings a true educational psychology will soon arise. Yet it would be worse than superficial to separate such suggestions of educational psychology from the background of general psychology. The teacher must constantly refer the special facts to a consistent theory of the

whole; only if he sees psychology in the right perspective can he coördinate the various special results. For us, of course, it must be sufficient to take a bird's-eye view of the whole field and to consider the chief psychological principles and facts that ought to be familiar to the teacher.

CHAPTER XIII

MIND AND BRAIN

WHAT are the parts of which mental life is composed? The obvious answer is, of course, feeling, attention, will, memory, intellect, imagination, perception, and so on. This was the classical answer of the old "faculty psychology." But modern psychology cannot be satisfied with the enumeration of such faculties, as if they really represented what actually goes on in any mind. For instance, ever new memory acts fill our mind; but nothing is gained by referring them to a general power, the Memory, which stands behind these single recollections. As there is not a general fish in water—a fish which is herring and eel and salmon at the same time—and still less a fish-forming faculty which produces the particular fishes; so there is no memory faculty, but only the single memory ideas.

The situation is no different in the case of attention or will. Again, it is an empty abstraction to consider them as unities or as faculties. Just in these cases too often the old faculty psychology still lingers in popular discourses and in the schematic psychology of the teachers. There is no Attention, but an endless manifold of separate acts of attention each of which stands for itself and has its particular content. And there is no Will, but only a chain of special volitions. Of course, as the botanist may form the conception flower or tree or fruit, we may and must

form general groups, and thus bring all the volitions under one label, and all the attention acts under another, and all the memories under a third, but one will exists in the mind as little as one fruit power grows on the farm; there are as many volitions in every mind as there are apples and pears in every orchard.

Yet the single memories and perceptions and volitions and their kin are, after all, not real elements, as, of course, the scientist means by an element something which cannot be divided any further. For the chemist water is not an element, because it still can be divided into hydrogen and oxygen. A memory idea, or an imaginative idea, or a perception, or an abstract idea is therefore not an element, either, as we can discriminate a variety of parts in each. Such an idea may contain something blue and green and sweet and cold and smooth, and so on. The same holds true of those other mental states which are not ideas of things; emotions and feelings, too, can be resolved into parts. If I analyze carefully, I may feel in one emotion a certain tension, and a contraction, and a shiver, and an impulse, and a pressure in certain joints, and a dryness in the mouth, and an onrushing thought; and every one of these parts may be analyzed still further. If I divide my parts until I come to bits of experience which can no longer be recognized as composites, I reach elements. For instance, a single tone of a certain pitch is an element. But then we see at once how endlessly large the number of such elements must be. A good ear may discriminate ten thousand different pitches. But every one of these pitches may be given with any intensity, from the faintest to the loudest; and, of course, each intensity again gives a new element. Hence, modern psychology has to calculate with millions of psychical elements.

These elements must be classified, but this is to a high degree arbitrary, and there is certainly much disagreement. The most usual way nowadays is to separate them into two large groups. Those elements which are parts of ideas we call sensations, and those elements which are ultimately parts of feeling we may call affective elements. Some psychologists would prefer to consider the last elements of the volitions also as a particular group, while the majority recognize that the whole structure of a volition can be resolved into sensations and affections. Others, again, consider even the separation between sensations and affections superfluous. They would say that what we call affections are still complex states, which can ultimately be analyzed into sensations. Sensations of our muscles and joints are here especially important. The chemists separate the inorganic and the organic substances in nature, and yet find that those inorganic bodies are composed of exactly the same elements as the organic. In the same way the psychologist may very well discriminate ideas and emotions, even though he finds that the ultimate elements of the emotions are the same from which the ideas are built up. But whether we discriminate two or three general groups or recognize all elements as patterned after the sensation scheme, of course we must immediately form subdivisions. We have the sensations of sight, or of hearing, or of touch, of taste and smell and temperature, of muscles and joints and tendons, of pain, and so on. Every text-book of psychology gives a full account of them. Here we are interested only in the principles.

Thus the content of man's consciousness is a large mass of psychical elements clustered together in these groups, which we call our ideas, or feelings, or impulses, or perceptions, or memories. And these, again, hold together in

larger groups in our streams of thought, in our emotional volitions, in our self-consciousness, in our purposive plans. But the description of this manifoldness is certainly only the beginning of the psychological task. We must try to understand how these mental states arise and how they hang together; why the one brings the other with it and, again, why one suppresses the other; what the conditions for those mental states are and how they can be influenced. The teacher would have no possible interest in simply analyzing the pupil's mind, if he could not hope for an understanding of the coming and going, of the causing and effecting, of the producing and changing within the mental content.

The most superficial survey convinces us, however, that we cannot understand the appearance and disappearance of the mental states without considering the processes of our body. Every perception shows us the way. We perceive the blue sky, that is, we have the mental sensation of blueness, but it disappears if we close our bodily eyes. Moreover, the excitement of the eye is not sufficient. If the optical nerve, which connects the eye with the brain, is cut, the stimulation of the eye is ineffective. The light ray still reaches the eye, but there is no sensation in the mind. Furthermore, if the optical nerve is intact, but a hemorrhage in the brain has destroyed the cells in the rear part of the brain, which is the end station of the optical nerve, then, again, the patient is blind to the stimuli of the eye. In short, the visual sensations occur only when a certain excitement of particular cells in the brain is produced, and the sense organ and the nerve are only a medium by which the outer world may reach these cells. The same holds true for all that we hear and touch, or for the organic sensations from the inner organs of our body. Every time the

stimulus reaches a particular group of brain cells. And the perception of a complex thing, with its colors, and form, and hardness, and temperature, and weight, and smell, demands the coöperation of many thousand cells distributed over the whole brain.

Not only impressions from without but impulses to actions from within are evidently also bound up with brain excitement. Whether we walk, or speak, or write, or read, all the muscle activities obey our mental ideas. But these ideas work only if certain brain excitements are going on. Thousands of such impulses issue from the brain constantly. If our mind faints, we collapse: the lack of blood in the brain interrupts the impulses which continually go to all the muscles of our body. If the brain is asleep, no will is effective. A hemorrhage in certain centers of the brain makes us unable to start the right impulses. If our mind is excited by an emotion, a thousand processes in the body result—changes in the blood vessels, in the intestines, in the glands, like blushing and paling, perspiring and trembling. Yet all these bodily processes are dependent upon processes in the brain; hence the emotions, too, must be accompanied by brain excitements which resound in the whole body. In short, the mental states show most intimate relation to brain states in expressions, as well as in impressions.

But it is easy to observe that this intimate relation between mind and brain also exists where purely inner functions, like memory, attention, feeling, and thought are in question. In all these fields every influence on the brain has its counterpart on the mental side. If the brain is excited by chemicals, like drugs, alcohol, tea, or by fever temperature, or by a disease of the brain itself, the mental life is always changed, from a slight retarding or facilitating of

the stream of ideas to the deepest disturbances of the whole personality. Fatigue or exhaustion of the brain cells means change in the attention or memory; inhibition of growth of the brain means idiotic lack of mental development. Sleep of the brain brings that curious interplay of ideas which we call dreams; bad nutrition of the brain brings a change in the whole inner life. And all this corresponds to the results of animal psychology. The mental functions—memories, attentions, feelings—become more and more manifold and efficient the more the central nervous system of the animals becomes differentiated.

Yet, even if the observations on normal persons, and on patients, on children, and on animals spoke loudly for the complete connection of mental states and brain processes, there would remain the possibility that at least some mental functions might be independent of bodily actions. Our ideas may be slaves of our brain. But has not our will, or our attention, or our imagination the power to switch our interest in the one or the other direction, to prefer or to reject the one or the other sensation, the one or the other deed? Opposition, however, arises at once from the natural sciences. Their whole system is built up on the idea that no physical movement can have any other cause than again a physical movement. All processes in the physical universe are controlled by this demand. The fundamental theory of the conservation of energy in the world is included therein. If I move my lips to say yes or no, it is a physical movement, and the whole endless chain of its causes must have gone on in the physical world. Thus the physicist, however far he may be from the actual demonstration of the details, must postulate that those lips were moved to a yes because the brain processes made it necessary, and these brain processes depended upon the inborn

disposition of the nervous system and the trillions of influences which have reached it since birth. No nonphysical influence would be able to intrude into this continuous series of physical causes and to change by mere mental power the yes into a no. As every mental state leads over into physical actions—it may be speaking, or reading, or merely turning the eyes, or holding the breath—every mental state must be accompanied by a physical process. Hence, the mechanical world's view of the natural sciences demands a complete parallelism of inner mental states and brain excitements.

But some one might answer: Why is psychology to subordinate itself to the natural sciences? The psychologists ought to build up the general theories from their own standpoint, and not ask what the physicists think about it. This is perfectly true. Yet the result is in no way different, if the psychologists look at the mental side only. The psychologist wants to explain those mental facts; he wants to understand why one idea brings another idea, why the idea brings a feeling, why the feeling brings a will, and so on. But the psychologists must quickly discover that on the mental side alone there is no link to connect one mental state with another. The sight of a flower brings its name to my mind or awakes the will to pick it. But have we any means of explaining in a causal way how that sight idea and that word idea are linked? Have we any insight into the mechanism by which the one pushes the other into consciousness? We experience the one after the other, but we never understand how the one causes the other. On the physical side it is easy to understand the necessary connections. Every atom of the physical world lasts and, in the view of the physicist, all the changes in nature are only changes of position. But all those sensations and feelings

are ever new creations which cannot last. The pain which I no longer feel does not stay anywhere, but ceases to exist. The will which I no longer will does not remain as a psychical fact. Every mental state, as mere mental stuff, must be newly created in every new act. But how can we conceive of any necessary connection between such new and ever new creations? In a system in which nothing lasts we are entirely unable to understand why the one feature comes after the other. From a strictly psychological point of view, we should be at a loss to bring any connection into this mass of mental experience. Thus, there is only one way open by which to get necessity into the mental play: the psychical must be linked with the mechanism of the physical world. One idea brings another idea into consciousness, because the brain process which accompanies the first is connected with the brain process which accompanies the second. A certain feeling brings a certain will impulse, because the action of the cells which create the feeling flows over into other brain cells which give us the will. Now, of course, the psychologist must presuppose that all mental states can ultimately be explained, as otherwise his task would be hopeless. He must therefore postulate that nothing can happen in the mind which is not completely determined by accompanying brain processes.

This postulate is the real meaning of the theory of so-called psychophysical parallelism, the fundamental theory of modern psychological thought. It simply claims that there is no mental process which is not parallel to a physical process — that is, nothing can change in consciousness without there being a certain change in the brain. Of course there are endlessly many brain processes going on which have no mental accompaniment, but no conscious mental processes which do not have brain accom-

paniment. And again we emphasize: all this is not a matter of mere observation, but it is a postulate, and just for that reason binding for everyone who seeks explanation of mental facts.

At the very threshold we may warn against the misunderstanding that such a view is materialistic and deprives mental life of its dignity. Let us not forget the meaning of psychology. We saw that psychology was not an account of our immediate life reality. If we take life as we immediately feel it, then we do not know anything of a connection between our inner experience and our brain. But in that naïve life experience we have no demand for any explanation. We saw that there we do not know a causal point of view at all. Everything came in question only with reference to the purposes and aims. Our feelings and wills and ideas were not taken as a kind of mental stuff found in our consciousness and watched there like a procession of things. It is all an expression of our personality, and the only reasonable question is: What does it mean? How can we interpret it? How can we appreciate it? That was the world in which we moved when we asked for the aims of teaching in the first part of our discussion.

Now we have taken an entirely different point of view, acknowledging from the start that psychology is an artificial way of looking at inner life, but a way which is useful and necessary for the purpose which we now have before us. It is the only way which is open to us, if we are to consider our inner life as causes and effects. And as soon as we start upon it, we must go on persistently. If it leads us to a perspective in which every mental state is an accompaniment of a brain process, we must keep in mind that this refers to the inner life only in so far as it is looked on from this causal point of view of psychology. Moreover, let us

not forget that the mental life itself, seen in such a special aspect, has no particular dignity and value. All the values of life came to expression only as long as we took life in its purposive aspect. Then our will really had a meaning and could devote itself to higher aims and ideals. As soon as we look on it as mental stuff, all these wills and feelings and ideas are nothing but things which we find in ourselves, no better and no worse than the things of the physical world. The sensations and affections, as mental material, have no more dignity than the brain cells. No emotion ought to mislead us into resistance when psychology demands from us that we look on our friend and on our pupil as a psychophysical mechanism in which every mental state is the accompaniment of a physical brain process.

On the other hand, such a psychophysical view by no means interferes with the demand for human freedom. Of course this demand has a very different character, according to whether we look on man from the point of view of immediate life experience or from the point of view of causal science. In our naïve life, where we understand one another and know ourselves as centers of purpose and will, our freedom means that our will does not come in question in any reference to causes, but only in reference to purposes. There the question of causes has no meaning whatever. If we take the psychological attitude, of course freedom cannot demand a break in the causal chain, but we have a perfect right to call an action, or a decision, or a volition free if it results from an unchecked interplay of the energies of the brain. An action which results from force is not free. Nor is an action free which is produced by an abnormal brain mechanism—for instance, in fever, or in a brain disease, or under alcohol, or under hypnotism. The actor is not responsible for the outcome in such a case,

as his brain energies are not in normal coöperation with one another. Some brain parts are inhibited or disturbed. The accompanying mental states are therefore not the outcome of his whole life history. But if all his energies are at work, his freedom cannot suffer from the fact that the conscious motives and decisions are accompaniments of brain processes. These brain states, with their mental functions, constitute our personality, and our action is free when the conditions for it lie in our complete personal development.

This psychophysical view frees us at last from the old-fashioned narrowness of psychologists. They made a sharp demarcation line between the mental and the physical facts, and therefore treated inner experiences, such as emotions, or volitions, or intellectual processes, or memories, or judgments, as if the conscious facts were the whole story. Now we see that mental and physical facts belong most intimately together. Each of those states is mental and physical at the same time. Hence, we are better prepared to understand that each of those states also contains many physical processes which have no mental accompaniment at all. That which enters into consciousness may even be a very small part of the whole process. If we hear a sentence, we may have very little more than the sound of the words and a few vague images in our consciousness; and yet endlessly more goes on, inasmuch as our brain enters into an entirely new attitude. New paths open and connect with each other in the brain, and our personality thus becomes prepared for certain later actions in accordance with the meaning of that sentence. To understand it meant much more than merely the experience of those few mental states. It meant a complete change in the setting of our nervous system, and these great bodily alterations in

thousands of our nerve cells cannot be separated from those other brain processes which are accompanied by the mental idea of the words. In the same way any emotion or volition is endlessly more than the mere mental experience. The whole nervous system may be influenced by that emotional wave and may have opened and closed channels of will and action which may become influential in later life. But all this has gone on in the physical part, while consciousness experienced only a small fraction of it. Hence, if we are in the midst of the causal view of mind, we must consider every single mental experience in its whole physiological setting.

Thus we have gained a double insight at our first approach to a modern psychology. The mental facts are parts of a psychophysical process; no mental state occurs without accompanying bodily changes in the brain. Moreover, many further brain processes may belong to the whole state, although they have no mental accompaniment. Secondly, every psychophysical state is extremely complex. We have no simple faculties, no simple memories, and wills and perceptions, but an abundance of single acts, each one of which is composed of many psychical elements. Even the smallest mental experience must be conceived of as a most complex structure. Hundreds of thousands of elements may coöperate to build up the mental state of a child at a given moment. The teacher cannot put enough emphasis on each of these two facts. If he ignores the first, he will deal with the mental life as if it were a mere spirit, and will therefore neglect just those parts of the psychophysical process in which all the causal connections are going on. On this account he will from the start be ineffective in dealing with the child. If we want to inspire the child, and if we want to preach to him, we may ignore the bodily side,

but then the purposive view alone is in order. If we wish to have causal influence on his mind, our work must be a failure if we deal only with the mental half of the psychophysical action.

On the other hand, the teacher who ignores the endless complexity of the mental states and thinks of them only in those clumsy forms of popular psychology must also be doomed to failure. The more complex the teacher conceives the mental state to be, the more he will be able to control it. The subtlest influences may count, the faintest fringes of experience may be important. But when we are aware of this multitude of elements, the first impression must be a chaotic one. As long as we try to understand the pupil's mind in a purposive way, all seems simple and clear. But as soon as we take the psychological standpoint we recognize that in every mental state hundreds of thousands of brain elements are coöperating, and that every thought embraces masses of psychical elements. It seems a hopeless task to attempt to bring order into this swarming, as long as we do not refer everything to some general underlying principle. Modern psychology finds this unifying principle in the biological aspect of man.

CHAPTER XIV

THE BIOLOGICAL ASPECT

The analysis of the mental states and their bodily counterparts brought before us a bewildering manifoldness. We must seek a unifying principle. Of course we must not give up our psychological point of view, from which every mental state is a combination of many elements and each causally connected with others by the accompanying brain processes. But in the midst of such a psychological account of inner life we must try to relate the facts so that in their scattered manifoldness they may be recognized as the necessary parts of the life process of the individual.

We saw that every idea, and emotion, and volition, every feeling, and memory, and imagination, and perception is parallel to a certain action in the brain. But we did not have any principle which explained the occurrence of these brain states, with their psychical accompaniments. Of course we might be satisfied with merely stating the fact that the brain passes through all kinds of excitements, but that simply means to be satisfied with a haphazard occurrence which we cannot understand. All this suddenly changes as soon as we take a strictly biological point of view and consider these brain activities as organic functions which serve the ends of life.

By that we do not leave the consistent standpoint of the scientific naturalist, for whom everything in the world

is the effect of causes. The reference to the ends of life does not mean at all a change of standpoint. It accepts only those principles of explanation which have shown their incomparable value throughout modern biology. If the biologist tries to explain causally the structure of a flower or of an insect, of a fish or of a bird, he connects the development of those tissues and organs with their usefulness for the life of the organism. All that which is unfit for the conservation of the individual or its progeny must be eliminated under the conditions of natural existence, and everything which is well adjusted must be able to propagate itself. The biologist demands, therefore, with reference to the human beings as well that every function be explained by the service which it performs for the conservation of man. Those millions of chemical processes which go on in the digestive apparatus of man became related to the ends of nourishing the body.

What is the biological purpose of the brain and its functions? Is it of any use to the life of man that excitements in the brain go on, and that as accompaniments mental states flash up? Such mere brain activity would be in itself as useless and worthless as the beating of the heart would be if the heart had no connection with arteries and veins and if these blood vessels were not connected with the lungs. The real usefulness of the heart is bound up with the functions of that larger apparatus which carries the oxygen of the inhaled air to all the tissues of the body. From a biological point of view, the brain, too, can have its meaning only as part of a larger system. The brain has usefulness for the individual only in so far as it is connected, on the one side with the sense organs, on the other side with the muscles. The arc which leads from the sense organs through the sensory nerves to the brain and from the

brain through the motor nerves to the muscle system which moves the bones is a biological unity. Its work is really an achievement for the conservation of the individual. Its purpose is evident; it adjusts the body to the conditions of the surroundings. What would be the use of muscles, however well trained, if their actions should stand without relation to the outer world which makes itself known to the eye and the ear and the skin and the tongue and the nose? What would be the use of all these sense organs, if impressions of the world were brought to man, but there were no motor apparatus to approach or escape, to select or to combine, in short, to act on the things of reality? And, finally, what would be the use of sense organs and muscles, if there were no brain to connect the impressions with the expressions, the centripetal paths with the centrifugal? The brain is the great switchboard which transmits messages from the outside into impulses to reactions.

Millions and millions of stimuli reach the brain, combine the effects, produce after-effects in the brain, and discharge themselves in motor responses millionfold. This transmission is just as necessary for the conservation of the organism, as its breathing and heartbeat and its nutrition. Even in its most complicated form it is only a steady differentiation of that which we find in lower and lower organisms. Microscopical infusors which consist of only one cell react in an adapted way on the stimuli which reach them in a drop of water. They approach the food by expansion, they escape the poison by contraction of the protoplasmatic substance. This fundamental, useful reaction with which animal life begins is only specialized in the higher forms. The surface of the protoplasm becomes adjusted to the stimulus, and thus especially sensitive: sense organs are formed. Special parts of the substance be-

come especially contractible: muscles are formed. Special paths of transmission of the excitement from sense organ to muscle become isolated: nerves are formed. These nerves enter into connections to secure more complex transmission: a central nervous system is formed. These central parts become able to sum up the earlier excitements and thus to make the reaction a product of the individual's development and past experience; and that means that the brain develops the possibilities of memory. From here new and ever new characteristics of the brain substance become differentiated. But even man, from the naturalistic point of view, is like the infusor in the drop of water, simply an organism in which the experiences are transformed into adjusted motor reactions. The central part of this nervous transformation is accompanied by the perceptions, memories, thoughts, emotions, and feelings which constitute our inner life.

The chaos of brain cell functions and of sensations and affections is now completely organized. We understand their connections and developments in so far as we understand their necessary rôle in this process of motor reaction. The individual is an organism which adjusts its reactions to its surroundings. Everything which helps to that end is useful to the individual and the fact that it is useful makes it explainable by biological principles. A psychophysical process which has no reference to the adjusted reactions would be biologically superfluous and therefore beyond our causal understanding. But with this the whole aspect of man becomes new.

Man is now no longer simply a receiver of the world's impressions and a thinker, but he is in the first place a performer of action. The doings of man determine his possibilities of experience. Our response to the world be-

comes a condition for the development of the brain processes: our actions shape our knowledge. The old-fashioned view made it appear as if man received impressions and thought about them, remembered them, imagined new combinations, attended them, had feelings and emotions toward them, entirely independent of his decisions, volitions, and actions. The whole motor part appeared to be an unimportant appendix without which mental life might just as well take its course. Now everything is turned around. The attitude and action are now what give the real opportunity for the development of the central processes. We think because we are acting. No part of that whole transmission process can be cut off. And just this biological unity which results from emphasis on the motor side of the process is full of meaning and significance for the pedagogical interests of the teacher.

We must look into the mechanism of this apparatus more carefully before we turn to the special functions which constitute man's mind. We insist that the nervous system is a reacting machinery and that its fundamental function is to transform the impressions which the outer world makes on the sense organs into movements by which the body becomes adjusted to the surroundings. What are the most important steps to be taken in order to secure this effect? It is clear that a mere mechanical transmission of a certain stimulus into a certain action would be entirely insufficient to reach the end which our complicated life demands. Millions of stimuli reach our senses and through them the sensory centers of our brain. In every moment thousands of motor impulses go to our muscles. But certainly there is no simple correlation. A most complex transmission must have been performed in that great automatic switchboard, the central nervous sys-

tem, made up of the brain and the spinal cord. What are the changes which go on? How does the brain transform the incoming impressions?

The stimuli reach the brain through the sensory nerves. But our very first variation may be found in the fact that the impression which they make on the brain may last longer than the stimulus, or, on the contrary, may disappear while the stimulus is still going on. In the first case, the positive one, the psychologist speaks of perseverance; in the second case, the negative one, of adaptation. A sight or a sound comes to our mind and, without any special reason, it pushes itself again and again into our mind even when the stimulus has stopped. A name or a melody may persevere in us. On the other hand, our clothes may touch our skin all the time and yet we have become adapted; we no longer feel them. The mere perseverance or adaptation thus changes the impression from the outer world. But this is only a small step. The next is much larger.

The impression which stimulates our sensory centers in the brain may spread to other centers which have been stimulated together with the first in an earlier experience. The present impression awakes in the brain the whole earlier situation. A smell sensation of iodoform may awake the whole appearance of a hospital, if in an earlier experience we smelled that odor in a hospital room. A word which reaches our ear may suggest a whole landscape. A face may awake a whole life history. If we come down to the elements, we find that any two impressions which reached the brain together, or in such immediate succession that the first still lasted as brain excitement when the second set in, produce a certain change in the connecting path. Certainly every brain cell by its abundance of

branches is somehow in indirect connection with every other brain cell. If now two are excited at the same time we may think that the path which connects the two becomes a path of least resistance. Any future excitement of the one therefore flows over to the other. If the first is stimulated anew, the excitement of the second sets in and brings with it a reproduction of the earlier impression. It is this which psychology calls association of ideas. The association, accordingly, brings it about that an impression awakes much more in our mind than the mere perception.

Here, too, we may at once think of the opposite, the negative factor. Many impressions may come from the outside to our brain. We have, indeed, a negative process, if now not all can really enter into our experience, but if some, or most of them, are thrown out. It is in this sense the opposite of association. This happens if one of the impressions is especially strong and effective. It secures a kind of monopoly in the brain; it absorbs all its energies and drains them off from all those other centers. This is the state which we call attention. Whatever is in the focus of attention suppresses and inhibits all incoming impressions. If we attend to our book, we do not hear the noises of the street. Association thus enlarges the incoming stimuli; attention reduces them. In the one case the sensory excitement spreads over the paths of least resistance; in the other case, it blocks the incoming impressions.

Evidently, all this deals with sensorial impressions only, and it seems hardly in harmony with our previous claim that the sensorial processes are parts of reactions and are, therefore, intimately related to our motor activities. But have even those facts which we have mentioned been in

any way completely described? Indeed, may not the most important part still have been left out, however much the usual text-book psychology may rest its case with such a simple account? Have we really a right to say that the associations which our mind brings to us are merely the result of a haphazard spreading of excitements over sensory paths of least resistance and that attention is merely a haphazard cutting off of everything but one strong idea?

In reality the situation is endlessly more complex, and above all, in reality there is no such chance performance going on. Any word which we hear stands in hundredfold connections. Anything which we see may bring up any number of associations. And yet in a particular situation only particular associations will arise. Thus it is certainly more than a mere spreading. Every association involves a sifting, involves a selection of a few from the abundance which is at our disposal. Moreover, most of the associations are not even of that simple type of mere neighborhood in space and time. If I see a face, it may remind me of a name because that word and that optical impression were once given to me together. But that face might just as well remind me of another face with which it has similarity and with which it never was together in my experience. All those so-called inner associations where an idea brings to us other ideas with which it has relations, such as similarity or contrast, are more important for the progress of our thought than the mere external ones of space and time. Still more does it hold true of attention that everything depends upon particular selection. How arbitrary it is to say that only one idea is vividly attended to and everything else is suppressed because the nerve energy is drained off. No; we may attend a thousand things at the same time. We may follow a rich spectacle which

has abundant content and we may superadd plenty of thoughts and reminiscences to what we see there.

Indeed, this whole doctrine of mere spreading in association and of mere draining off in attention needs one fundamental supplement, which is in reality the chief thing. That spreading or that draining is always determined by the openness or closedness of the ways to a reaction. Anything which we perceive might bring up a hundred different reminiscences and ideas and emotions, but among them only those which harmonize with the action which is going on have a chance to come to consciousness. On the other hand, the idea attended to does not exclude all the other ideas, but only those are excluded which would lead to a different kind of action. Everything is inhibited which would stir up an interfering activity. If we do one thing, our ideas spread over to such new ideas as reënforce that action and our ideas hinder and suppress all those ideas which would disturb the action.

We can quite easily imagine how that happens. Let us think that an idea in our mind becomes vivid only if the brain excitement finds the channels of motor activity open, and remains unvivid and inhibited if those channels of motor discharge are closed. Then we have the whole situation in full light. We have still to consider only the one fact which the biologists know well and which is suggested by practical experience, namely, that if we do one thing, the pathways for the opposite action are somehow closed in the brain. Each motor impulse has its opposite and the two exclude each other. We cannot open and close the mouth at the same time, we cannot stretch and contract our arm, we cannot close and open our hand, we cannot inhale and exhale, we cannot shout and be silent, we cannot sit still and jump up, we cannot nod and shake the

head, we cannot fixate a point and let our eyes wander, we cannot approach a thing and escape from it, we cannot fight a thing and submit to it. In short, whatever we do, the mere activity in our brain somehow closes the channels for the impulse to the opposite action. This is the most fundamental fact of our whole brain activity. Without it our whole nerve life would be a chaos and an endless disorder. This mutual suppression of opposite actions is the one principle which brings order and regulation into the entire psychophysical system.

If an impression comes to our brain and produces a reaction of turning toward the thing, then this very act of turning blocks all those channels which would lead to an impulse of turning in another direction. If now from that other direction an impression comes which ordinarily would push us toward itself, it finds the channels closed. Then it cannot become vivid, it remains inhibited, while everything which helps us to give importance to that to which we are turning will rush to the mind on the associational paths. The wider we open one channel of discharge, the more we exclude the impressions which would lead us in the opposite direction. The more intensely we read our book, the more easily we may fail to hear if some one knocks at our door. From these most trivial rivalries to the most complex and highest reactions of the personality, it is always the same story. We associate that which fits in with our action and suppress that which interferes with our action. Everything which changes our motor system thus indirectly changes our power to experience the world.

Those activities and their changes are themselves of extremely complex character; we may at least look out in a few typical directions. First the system of reactions

changes through the many influences which decrease the resistance in the passageway. Of course every organism is born with a disposition for certain reactions, but life now molds this given disposition in every experience. Nothing can be more important than the influence of repetition, which characterizes all training and habit. If a situation frequently demands the same reaction, the transition in the brain becomes easier every time. But a similar result comes from an unusual strength of the impression which breaks open the path and perhaps once for all time overcomes the resistance. And what has most recently come to our brain may have left the path wider open for a while. Again we have negative factors at work. While a given disposition may lead to a certain motor response, we may artificially sidetrack the reaction. Thus we bring the given natural path into disuse. The impression comes to the brain, but before it goes over into the habitual track, we awake the idea of the opposite action, reënforce it and thus switch off the incoming current into the new outgoing path. And the result is that the neglected path slowly becomes closed.

Besides this widening and closing, we have another variation which shapes our life in every instant. Those natural reactions can become enlarged by a circuit and can become abbreviated by a short cut. The enlargement happens in this way. If an impression excites a reaction, this resulting movement gives us a sensation. For instance, we feel how our arm withdraws itself and this sensation of the resulting movement associates itself with the first impression. If now the first impression comes next time, that idea of the movement must set in by association before the reaction is completed. That means that the real movement is preceded by the idea of the

movement. Exactly that is the process which we call a will action. In every will action, the action to be performed is preceded by the idea of the action. The ordinary natural reaction, in which impulse simply follows impression, is accordingly enlarged in the will action by the idea of the movement preceding the movement itself. This enlargement makes a great difference. The mere fact that there is a sensory excitement which anticipates the end to be reached by the action gives to the brain an opportunity to stir up all the associations which might lead to opposite actions. Only where the end is foreseen does the whole sensory system become responsible for the performance of the deed.

On the other hand, we have the short cut. If an impression is stimulating an action in the highest layer of the brain, both the sensory and the motor way may lead through a number of stations. Now paths of least resistance which connect these lower stations may have formed themselves. The stimulus of the sense organ may accordingly flow over into the impulse to action before it reaches the highest centers at all. Then we have a reflex action. Our highest centers continually become disburdened by giving over their motor functions to the lower organs. We should be unable to write what we have to write if every movement of our fountain pen were not performed by reflex, that is without that conscious activity which we all needed when we first learned to write.

Hence, we have the spreading to supporting movements, the suppression of opposite movements, the widening by habitual movements, the closing by sidetracking movements, the enlarging by will movements, the abbreviation by reflex movements; and every change in the movements changes the conditions in the motor system and every change in the

motor system changes the conditions for the vividness and suppression, for the appearance and disappearance of our impressions and their associations. The development of our reactions is our life history. Through them our inner experience is never a mere reflection of the outer world of present and past, but is an endless selection and combination which takes its material from the impressions but its structure from our reactions.

Is it necessary to warn against a grotesque misunderstanding, as if the development of life therefore depended on the amount of movements which we perform, as if the athlete would have the richest inner life, surpassed only by the acrobat of the circus? This would be the most absurd caricature of the theory which we express. The motor responses of the athlete are very few and are adjusted only to some elementary conditions of the outer world. The more civilized life grows, the more it becomes independent of the immediate surroundings. The mere pushing and shifting and grasping of the things around us becomes less and less important and our actions become more and more complex and related to signs and words. Above all, just as our actions become dependent upon all the experiences which preceded them, so they become directed also toward the totality of future events. The motor response then consists not in a muscle action, but in a new widening or closing of motor channels in the brain itself. Later actions become prepared in that way. Every judgment which we form is just such a preparation for a future action, every emotion is such a resetting of the brain by which all impulses to action are wiped out and only one particular attitude becomes reënforced. The real outer movement may thus finally become a small part only in the reaction, inasmuch as a strong thought may go on with its feelings, emo-

tions, and judgments, and yet the whole process be only a preparation for an action or the whole action may consist only of a few decisive words. But there is not and cannot be a psychophysical, and that means a psychological state which is not in its deepest meaning, from a scientific point of view, a link in the chain between impression and expression. The teacher who aims toward the psychological understanding of the pupil will never go entirely astray as long as he persists in this biological interpretation. Yes; if we were to seek an expression for the most important truth which modern psychology can furnish the teacher, it would be simply this: the pupil is a reaction apparatus.

Of course no two such reaction instruments are alike. From the start every individual enters life with special pathways and connections in the nervous system, and with every breath throughout his life, he receives special combinations of impressions which transform the given paths in a million ways. The child, who for the first time meets his school-teacher, is an organism in which the inborn psychophysical dispositions have already been completely remolded and reshaped and in which all typical functions have already reached a high degree of development. The boy and girl of six years stand psychophysically far nearer to the grown-up man and woman of twenty years later than they do to the newborn child. All the passageways between the sense organs and the muscle system have been opened and have been brought into effective shape. Perception, memory, attention, inhibition, feeling, emotion, volition are working together in adjusting the actions of the little one to his surroundings; and the spoken words already play an essential rôle in these surrounding influences. Temperament and energy, talent and inclination

show their varieties from the first year of life and every general sketch can refer only to averages.

Yet there are certain typical regularities, especially in the succession of the various stages, however different the rhythm of the succession may be. In a newborn brain most of the nerve fibers lack the medullar sheath which makes them able to function. Only those systems and chains of neural elements are ready for work immediately after birth which are necessary for the first indispensable life functions, such as sucking and swallowing the offered milk. All the other brain tracts grow slowly into functional completeness and as soon as they are anatomically able to carry the nerve excitement along, the frequent functioning itself improves the ability. To be sure, even these first reactions for which the nervous mechanism is complete from the start involve a complex coöperation of motor organs. The infant who cries in response to the cold temperature on his skin works with a complex apparatus. Yet the number of these completed paths of reaction is extremely small. The newborn child does not hear and the visual impression does not awake any organized reactions. Some organic sensations, such as hunger, disturb the motor equilibrium, but for a long while there are no tears and no smiles, no eye movements and no grasping activities.

Everything that follows is a steady differentiation of this apparatus of reaction with its mental accompaniments. Part of the differentiation results from the internal growth which goes on in its own rhythm, but the larger part results from the impressions which demand that training and sidetracking, that enlarging and abbreviating, that combining and suppressing which we have characterized. The changes of life and the intentions of the home surroundings set the

stimuli which bring about this development. But, after all, the decisive period is to come; that is, the period of school life. The artificial stimuli which school and teacher, which work and words are offering to the mind of the pupil, play the strongest part in that formation which is to change the child into the future man and woman.

We must keep this biological aspect steadily before our minds. We know and we ought never to forget that this psychophysical point of view is not the only possible one and that it is not under all circumstances a desirable one. We have fully discussed its relation to that most immediate point of view, that of the purposive life reality. But it is sure and clear, that, if we need psychology to determine the means by which we may reach our aims, we must be consistent and must really take the child as the scientist must see him. And if we emphasize that the immediate personal attitude of real life demands from us that we always consider the pupil in the unity of his purposes, we may now insist that on the other side the biological psychologist must always consider the entire apparatus of the brain with the accompanying mental states also as a whole. This idea of the unity of the biological process must never leave us, if we now turn to the special parts and consider the different functions separately, beginning with the perceptions and leading through the central functions finally to the volitional part of the reaction apparatus. We must now study for each of them how they develop during those years of boyhood and girlhood and how they are individually different and which characteristics are of special pedagogical importance.

CHAPTER XV

APPERCEPTION

Pedagogues have insisted for a long while that the pupil must always be brought to a real perception of the world instead of learning merely those symbols and words and abstract conceptions which threaten to push themselves into the foreground of education. It may be doubted whether there is very much wisdom in such an advice. We shall soon see that the advice is even necessarily unsuccessful, since our perceiving itself remains controlled by our conceptions. But whether the perception is really the starting point for pedagogy is not what we care for here; we cannot doubt that it must be the starting point for psychology. The sense impressions are, indeed, the first material which the psychological stock-taking has to enumerate.

Even here begin differences between the child's mind and that of the adult, differences which are certainly not so fundamental as those in other regions and yet not to be overlooked. After all, the six-year-old child who enters school perceives every part of the surroundings in an inferior way. His color impressions, his tone and noise sensations, his taste and smell sensations, his tactual and pressure sensations are less developed than those of the adult, and still more is this true of his perceptions of distances and of intervals, of forms and of rhythms, even where no

meaning is attached to the object presented. The perception of small differences is inaccurate and the complex impressions are perceived in fragments. The experiments of recent years have contributed much to the demonstration of the slow and very unequal growth of all the perceptive powers. They present a vivid warning against that too frequent teaching which believes that the child really perceives the sense objects in the way in which the teacher perceives them and that the words which refer to sense contents are really understood by the child in their full meaning. It would be hasty to draw conclusions from the unsuccessful effort of the children to sketch by drawing the things which they see. But in a certain degree even these drawings indicate the narrowness of the childish grasp. Most imperfect of all is the child's idea of time.

In all this we abstract from those variations which result from the deficiency of senses, for instance, from shortsightedness or from slight defects of hearing. These latter are by far too often neglected; the child is punished for his carelessness, where the disease of his ear hinders a clear, acoustical understanding. But here we have to deal only with the normal child, and we have no reason to refer these normal deficiencies of childhood to any incompleteness of the sense organs. It is rather a brain difference if, for instance, we find that the color sense of the little boys is poorer than that of the girls or that, on the whole, the recognition of green and especially of yellow are still very uncertain at a time when red and orange are recognized. The central character of such shortcomings is all the more plain, as the experiment shows how much it can be changed by training. The period of school life must serve the training of the perceptive powers no less than other functions.

It must not be forgotten that even here at the outskirts of psychophysical activity the motor process plays its fundamental rôle. There is no perception of the lines and curves and forms in the visual field without eye movements from one point to another, no change in distance without change of the muscles which accommodate the lens and which regulate the convergence of the eyeballs. There is no perception of the rhythms and intervals of sound without changes and relaxations in the reacting organism. There is no examination of the surfaces which we touch without movements of our limbs. There is no perception of weight without contractions of muscles. Practically every perception involves our motor responses and every development of discrimination and distinction must work with the help of our activities. Hence every influence on our motor responses changes also the natural perception.

Often only the subtlest understanding of these relations is able to avoid pedagogical mistakes. For instance, we hear nowadays that the school child ought to have stereoscopes in the classroom, as the colored stereoscopic pictures render the plastic effect of reality. They offer to the two eyes just those retinal stimulations which nature in its three dimensions would give. But such arguments have left out the most essential part—the eye movements. It is easy to understand that the rotations of the eyeball related to the near pictures must be very different from those related to distant nature. The result of this difference is that even the best pictures of the stereoscope must be perceived like little miniature models almost without any suggestion of real, wide vista. The consequence is, that the children very quickly get tired of them. If they see simply flat pictures, they never take them for reality and they turn with interest from one to another. But with their

stereoscopes the artificial plasticity suggests the attitude toward reality and yet the unnatural eye movements produce a continual disappointment. The child plays with the new toy for a little while and then loses interest in the miniature models.

Accordingly, every educational step demands the subtlest adjustment to the perceptive conditions, which are steadily changed by the inner growth and training. But do we not move in a sphere of abstraction, if we speak at all of perception here and try to remain aloof from the process of apperception? This word, which has a long and eventful life history, has slowly become a sacred word in teachers' meetings. And more than other psychological terms it has tempted pedagogical theorists into a confusion between facts and prescriptions. In contrast to perception, apperception means nowadays simply that the sense material which we receive from without is awaking in our minds other mental material, especially memories, by which the new impression becomes linked with the content of our mind. If we hear a word in Chinese, we cannot apperceive it, as it does not awaken the ideas which the corresponding word in our mother tongue would have stirred up. Yet even that Chinese word may not remain entirely without apperceptive value. We may be sufficiently familiar with the sound of Chinese so that it stirs up in us at least the idea that it is a Chinese word. And in this way again it has gained a certain setting; it has lost its complete isolation.

Yes, we may say that we cannot perceive anything which has not at least a slight apperceptive connection; there are always a few elements in our mind which are ready to welcome the newcomer. And this is true of the mind of the youngest child. We may always artificially

separate the perceptive elements from those superadded subjective contributions, but we can never acknowledge an actual experience which is confined to naked perception. Indeed, we might say that if a perception does not grow into an apperception, it cannot come to its own rights at all. Endlessly many stimuli knock at the doors of our senses and are not absorbed at all. We cannot simply say that we do not perceive them. We might perhaps say we do not turn our attention toward them, but our attention would be drawn to them if they linked themselves with apperceiving clusters of ideas.

To say that the teacher ought to take care that all new material is apperceived by the child is a commonplace which does not help toward an advance. Everything depends upon the ways of apperception. Things may be apperceived in a trivial way which does not educate at all and which does not enlarge the mind; and they may be apperceived in a way which really deepens the insight. The right guidance of apperception is the only important demand. And this right guidance will insist above all on such apperceptive processes as demand the pupil's own effort and seeking. The more the child learns to discover the essential apperceptive relations, the more the new material will add to the mental equipment. No doubt the ability for apperception also passes through different stages. They may not always repeat themselves in the same order and still less in the same rhythm, inasmuch as they must be greatly influenced by individual differences. Experiment has unveiled here many fundamental characteristics.

At present the favorite type of experiment is that of presenting a complex picture to a child for a few seconds and studying his replies to a series of questions which

refer to the details and the whole content of what he saw. It is a form of experiment which also very neatly allows the testing of the influence which suggestions or recent experience or repetition or predilections may have on the shaping of the apperception. The stage of early childhood always seems to be one in which the chief clusters of the impressions still remain without connection. One thing and another are enumerated, often the most trivial before the most important. In the next stage, which is usually referred to the eighth year of life, the objects are apperceived with reference to their functions, especially the persons in the picture are apperceived in their activities. At about the tenth year the description gives account of the space and time relations and of the causal connections between the things. The last stage is characterized by an effort to resolve the whole objects into their parts.

The descriptions of the same picture shown to children of seven and of fourteen years for a quarter of a minute quickly yield these two extremes of the lowest and the highest stage of apperception. The experiment shows further that a careful preparation may apparently abbreviate this natural development, but the success is not a lasting one. On the whole those various stages need their own time of development. The rhythm of this development is not the same for the two sexes. Moreover, the fundamental tendencies of the apperception also vary for the sexes; the girls seem to apperceive the personal activities, the boys the things. Yet the different ways of apperception are perhaps still more fundamentally varied by the personal types. Even the youngest pupils indicate the variations which foreshadow their whole life history.

It has been proposed to classify those types of apperception of which every school class contains specimens, as de-

scriptive, connecting, scholarly, and emotional types. The first type repeats only what has been perceived; the apperception thus refers to the objective analysis. The second type interprets the apperceived situation by uniting as well as possible the parts into a whole process. It is a synthetic understanding as against the analytic. The third type leaves what is perceived and turns to stored-up knowledge. Such pupils do not really observe; they see in the things that which they have learned and apperceive it by the means of their conceptions. Finally, the fourth type interprets the apperceived material by feelings and emotions. Such a child projects his own life into that outer experience. The observation itself may even become falsified by fantastic additions, and the whole report thus gets a subjective character.

It is not difficult to recognize in these various types the great groups of men which surround us everywhere and which give color and manifoldness to our public opinion. It is not surprising that experiment can discover these fundamental traits of apperception at the lowest stage of development, as just these tendencies are certainly given with the inborn disposition. Very little has been added by surroundings and education. To be sure, a conscientious teacher may try to overcome the one-sidedness of these types, may teach the boy of emotional type to become an effective observer of the objects of nature, and may teach the erudite type, who too easily relies upon words alone, to open wide the channels of the senses and to see and to hear. And yet fundamentally those types of apperception will remain, and while the school may work to overcome the narrowness of one or another type, the school will have still more interest in making the best of them. The teacher simply has no right to ignore this variety with which na-

ture has fitted the pupils, and least of all has the teacher the right to force his own chance type of apperception on the class with its various types. Is it necessary to point out that the whole manifoldness of apperception ultimately corresponds to ways of behavior, and that for this reason types of action are finally at the bottom of the apperceptive faculty? The child who is controlled in his behavior by the external impressions and the other child whose actions are unfoldings of his own ideas must come to very different ways of apperceiving the world; and their tendencies ought not to be neglected when the hour comes for choosing a calling for life.

On the other hand, if we compare the general average of the youthful apperception with that of the adult, we might as well acknowledge a difference in the distribution of types. That which we call the emotional type after all characterizes the childish way of apperceiving the world in general. Compared with the adult the child is more inclined to give a subjective interpretation of the apperceived surroundings, in such a way that his own life impulses and his own feelings are projected into the things. The ideas which the child's mind furnishes for the understanding of the world belong, therefore, more to the imagination than to the logical understanding or to the objective memory. Memory and imagination both work with the material which the earlier experience has supplied; but the memory reproduces that material in the given order of the foregoing facts, the imagination combines the material in an order which is determined by the individual desires and feelings. The imaginative apperception accordingly interprets the given impressions by ideas which satisfy youthful longings. Here is the basis for the child's play. The boy apperceives the stick as a horse, the girl apperceives

the stick as a doll. The change from this subjective to the objective apperception may be equally conditioned by the inner development and by the outer influences. The vividness of the feelings and of the tendency to project the self into the world fades away and at the same time education supplies the richer and richer material for objective knowledge and memory.

We have not yet taken account of that variety of individual apperception which has found the fullest treatment in the experimental study of personal differences in recent years. Even popular circles to-day usually know that which in an almost surprising way was ignored until a short time ago, the fact that human beings belong to a visual or an acoustical or a tactual-motor type of mind, or to types of characteristic mixtures of these fundamental forms. Yet this variety, which certainly no teacher should overlook, plays its most important rôle, not in the apperception of the world, but in the memory and imagination. We may, therefore, discuss it with this more natural background.

CHAPTER XVI

MEMORY

The psychological problem of memory is ever present before the mind of the school-teacher. Toward all other domains of the pupil's mind such as attention, effort, interest, will, and judgment, the teacher may instinctively prefer the purposive attitude, may try to feel and to think with the child without psychologizing his inner experience. But the hard facts of memory, or rather of the failures of memory, almost force the psychological standpoint on the teacher. If it is demanded from the pupils to learn the multiplication table or historical dates, the stanzas of a poem or the French vocabulary, then it is necessary to know how the effect is best secured and what factors stand in the way. Yet teachers all over the world still show little familiarity with the real, underlying laws of this psychological process and with the facts which the pedagogical experiment has secured.

Memory is only a special case of the psychological reproduction of earlier experiences. It comprises those reproductions of previous states which are accompanied by a conscious reference to the past. Our imagination, our voluntary thinking and reasoning may bring such reproductions of the same material of which our memories are formed, yet they are without conscious relation to our past. The explaining psychologist can easily find that they, too,

have their real origin in our past experience, but the experiencing mind does not refer the imaginative idea to our earlier experience. The psychologist may show us that even the ideas of expectations are only new groupings of previous states which the subject projects into the future. Every memory reminiscence depends upon the projection into the past. From an objective standpoint this reference may be erroneous, our certainty may be illusory, our imagination may have falsified the reproduced material, but we have a right to speak of memory as long as this subjective reference is given. And even though, when we repeat the multiplication table or historical dates, we certainly no longer refer them to the definite date when we learned them for the first time, yet we are bound by the feeling that we reproduce what we have learned in the past.

The general scheme of the reproduction process is already familiar to us. We understood it as soon as we took the biological standpoint and analyzed the brain processes which lie at the bottom. Two nerve centers stimulated at the same time secure a connecting path of least resistance by which in future the stimulation of the one flows over to the other. Yet we saw from the start that this mechanical scheme of the sensorial processes can be only the beginning of the explanation. The real understanding of the associative process always demands the further reference to the motor setting, to the actions. Our motor setting, the readiness of our motor discharge, determines which of the many possible paths of small resistance will be used in the particular case. The openness of the motor path thus makes a selection among the possible associations. This motor readiness, on the other hand, is determined by the whole situation, which demands from us a particular way of

reacting. Only those associations which support the prepared action have a chance to develop.

If I see a little, standing, black ellipse on a page, it might be the letter " o " as well as the digit zero. But if I see that little ellipse between other numbers, it does not associate itself at all with the " o " idea, and if I see it between other letters, the zero idea does not come to my mind at all. The motor attitude which I have taken has sifted all the possible associations before the excitement has become a real conscious, vivid experience. The psychologist then speaks of the constellation of ideas. Only those associations which harmonize with the whole constellation come to consciousness. In a way we never have associations belonging to one isolated idea only. The constellation which characterizes the memory process is, in the first place, that general setting in which we are ready to react as we did at a previous experience. We take the old attitude and expect that the fitting reproductions will set in. If our psycho-motor attitude were that of dreamy imagination or of expectancy, the same word or the same impressions might awake entirely different associations. But since we create a psycho-motor situation in which we want to react as we reacted before, only those associations which really create the previous experience once more have a chance.

Later we shall turn to association in general, but at first we may stick to this particular case, which is of such fundamental importance for the teacher. How does the mind, and in particular the child's mind, reproduce that which was taken in by the psychophysical system in the past. I may begin with a fact of which, on the whole, pedagogy seems still unaware and which contradicts the popular idea. I mean the fact that the mere seeing or hear-

ing and attending of the material to be learned, even with the best will for learning, is not sufficient. When the perception is completed, the memory still demands a period for settling and organizing the content. We are always inclined to think that if we have received the material, we have really taken it into our memory. We are not aware that a no less important period comes, in which our memory begins to absorb it, and without which the material is lost.

The physicians often tell us that if a man receives a blow on the head in an accident, he cannot remember what happened in the last half hour or last few hours before the accident. Why does he not lose what happened at an earlier time? Evidently that which came to the mind last was not entirely absorbed, the brain cells had not done the complete work. Every classroom experiment easily demonstrates that. Read to the children ten single substantives without connection, then give them a minute's rest and let them tell or write after that minute whatever they remember. The larger boys and girls will easily remember six, eight, or ten words. Now repeat the experiment, but instead of a minute's rest, engage their minds at once during that minute by a little multiplication or division, thus giving the mind no chance to absorb the memory material. When the minute has passed with their arithmetical work, let them give you the words which they have kept in mind. The result will be that two, three, or four words are remembered and by not a few children, none at all. We learn when we do not think of it. We learn skating in summer and swimming in winter; we learn when asleep, we learn while we are idle. But we destroy our learning unless we give to our mind plenty of time for absorption instead of rushing from new to new material. Even the

order of the lessons in school ought to be adjusted to this condition of the brain.

Trustworthiness of memory and the power of accurate reproduction depends upon many factors. Every school child knows that repetition and freshness of impression is of the greatest helpfulness. Every teacher knows that the attention of the child is important. This stands in intimate relation to the impressiveness of the material, to the vividness with which it is presented, to the temporal rhythm in which it is offered, to its clearness and its feeling tone, and, above all, to the amount of material. There is practically no limit to the factors which may influence the successful reproduction of the memory material. Yet here again the physiological principles and especially the reference to activity and motor attitude most easily brings order into the chaos.

Experimental pedagogy has succeeded in clearing up the facts of the case by going the way which experimental investigation always must go, namely, by substituting schematic material for the richer material of real life. The laboratory must always reduce the living facts with their abundance of relations to the simplest possible terms which seem to stand far behind the actual experience, but which allow the recognition of the real principles. We cannot study the laws of memory if we gather material only from learning poetry with its rich fringes of meaning. The turn to real pedagogy with scientific exactitude came when the memory studies were removed from the living school material and were performed with the dead stuff of nonsense syllables, all of comparable structure.

With such nonsense material we can carefully measure the effect of various methods by a number of schemes. We may ask how many repetitions are necessary before the

whole series of ten or fifteen or twenty syllables is repeated correctly. Or we may ask how much of such a series is kept in mind, for instance, after one or after two or after three repetitions. Or we may inquire how often prompting is necessary for the correct reproduction of a given series. Each of these methods has its special advantages for particular problems. In using all of them we can determine exactly the influence of every factor which influences memory work and can study the changes which result from the natural growth of the pupil's mind and from training and education. A series of six syllables may need only one presentation to be repeated correctly, while for the same person twelve syllables may demand fifteen repetitions and sixteen syllables thirty repetitions. In a similar way we might study the influence of the time interval which lies between the learning and the reproduction. The experiment shows how exactitude falls off with increasing time at first rapidly, then slowly. Or we might study the influence of the different sensations or the different technic of learning. The experiment can demonstrate, for instance, that a number of repetitions at one sitting is never as effective as the same number divided into several groups of repetitions. Rhythmical learning becomes the greatest possible help. Learning in large parts is much more economical than learning in little bits, however much the instinctive feeling may object to such a statement. The experiment can also very neatly show how secondary connections are formed; for instance, how far the first syllable connects itself not only with the second, but, to a certain degree, also, with the third and the fourth. There is very small tendency toward a backward connection. The first word awakes practically the whole line.

Even such elementary facts which seem to go on en-

tirely in the sensorial sphere find their natural explanation only by reference to that psycho-motor side which we emphasized. If our memory associations were really nothing but connected ideas based on the nervous paths between sensory cells, we ought to be able to link B with A as well as A with B. Yet no one can repeat a poem backward, and any apparent reversion of the original order is possible only where those things which come successively to our mind have become at once parts of one whole situation. If each part is felt as belonging to a simultaneous whole, any element may bring to our mind every other part. But all this only means that those ideas exist for us in their natural connection with our activities. We cannot reverse the order of the tones in the melody, because the hearing of it was at the same time a series of impulses to sing. We know the alphabet well only in one order because we have learned to speak it so. This motor process also helps us to understand our need for certain rhythmical accentuations and the improvement of memory by a certain slowness of presentation. Indeed, the experiment shows that with words the number of errors of memory decreases to less than half when the intervals between the given words increase from half a second to two seconds. Of course here also belongs the very important help which results from the speaking or reading of the words to be remembered.

The memory of the child is by far inferior to that of the adult. The pedagogical experiment has demonstrated that it does not grow in any steady progression, but in fluctuations. It seems that the improvement shows itself most strongly about the tenth or eleventh year and that the period of about the fourteenth year represents low tide. However, the memory does not grow equally for every ma-

terial. On the whole, the memory for things develops more rapidly than that for words, while the memory for numbers develops least rapidly. The memory for visual material is earlier in evidence than that for movements and tactual impressions. It is claimed that this order is not exactly the same for boys and girls inasmuch as words which name visible things seem to be remembered better by girls than the things themselves, while with boys the opposite prevails. It seems that the reproduction of feelings comes especially late for both sexes. Between the eleventh and fourteenth year the memory of the girls seems to be decidedly superior to that of the boys, while later the average boy gets ahead.

Only from recent investigations has much emphasis been put on the difference between the immediate repetition and the real keeping in mind. It is well known that there are strong personal differences in this respect. Some people are able to repeat in a mechanical way that which they have just heard or seen while they forget it quickly; others are slow in their learning but retain it well. It is easy to demonstrate that the typical weakness of the child's memory lies in his inferior first learning, while he keeps relatively well what he has once learned. The older the child grows, the more does this faculty of the first correct reproduction improve. From a certain age that second power directly decreases; the adult person more easily forgets what he has once absorbed. The number of repetitions which are needed to give a correct rendering is much larger for the pupil than for the adult. The exactitude with which this reproduction is still possible after a longer period of time decreases with growing age.

Both faculties, of learning and of retaining, without doubt, profit by training. The widespread belief that memory remains constant, that only external tricks of

learning can be acquired, and that one is born with a good or a bad memory which cannot be changed must be eradicated. The mere formal training counts wonderfully, but it must be a real training in memorizing. The pedagogical experiments seem quite conclusive there. And the training does not only secure the fuller development of the power to learn but counteracts effectively the natural loss of the retaining power in later years. It is an important question whether our present school tendencies are sufficiently adapted to this fundamental fact, the more as we must not forget that for the overwhelming majority of school children the whole training falls into a period in which the natural development of their memory has not reached its highest power.

All these observations refer to the average. Perhaps no factor shades this average so much as the variety of ideational types to which we referred when we discussed apperception. The test of this variety is most easily made by studying the character of the memory images. To remember last night's party means to some persons to remember the visual scene, to others the hearing of words and music, and again to others the reviving of movements and motor perceptions. They represent three fundamental types. Each may show great differences. Even among those visualizers some may see that party scene with all the colors of the ladies' gowns, while others see everything only white and gray; some see the whole scene and others only shifting parts. The motor type, too, may feel only the coarser movements or may once more pass through the whole conversations with an internal speaking. Moreover, not a few combine various possibilities. The acoustical-motor imagination is so frequent that it has sometimes wrongly been called the typical, average way of thinking.

This difference of types certainly also has its strong influence on the power to absorb and to retain one or another kind of memory material. The visualizers cannot take hold of that which they hear, and the pupils of the acoustical type are slow in learning what they only see. Those of the motor type are lost if no response is demanded by the situation. All inner speaking, all speaking aloud and, still better, all writing reinforces the impression for them as no other means can do. The individual differences go so far that, even in words which are seen or heard, one type will remember those which refer to visual things, another those words which contain a sounding process, and others those which refer to movements. To a certain degree the motor type makes use of words more easily than the visual or the acoustical type, and, as the development of the school child always goes from a thinking in things to a thinking in language, the motor type is predisposed to a quick development. But it would be entirely unjustified to identify the contrast between motor and visual type with the contrast between interest in words and interest in things. The visualizer deals with the words as written or printed impressions, and the motor type takes hold of the things in making them material of action or by interjecting activity into the things themselves.

It is certainly in the power of every individual to develop just those tendencies of ideation which are feebly supplied to him by nature, and the fullest possible growth in all directions may be the ideal. It would, therefore, be hasty to confine instruction for each group of individuals to memory material in its particular preferred sense type. The idea of special classes for pupils of special memory type is, accordingly, unwise, but it would be still greater shortsightedness to ignore these fundamental differences

in the technic of teaching. The teacher must never forget that the words or figures which he writes on the blackboard may be the intended help to the memory of merely one third of his class; there may be another third which would profit more if they heard the sounds from the human voice, and the remainder would retain them much better if they had a chance to speak or write them. The laboratory shows that these latter gain the advantage even if the writing is not visible, but perhaps done with a piece of wood on the desk. The natural tendency of every teacher to put emphasis on the special scheme for which he is born must be a severe injustice to a large fraction.

CHAPTER XVII

ASSOCIATION

All remembering, we said, is a reproduction of earlier impressions, with the consciousness of the reference to the past. Most of our mental reproductions lack this temporal reference. If I see a French word and its translation comes to my mind, or if I see a flower and its name or its smell awakes in me, I do not refer it to the time when I experienced that connection before. Indeed, memory is only one special case of connecting the ideas which are reproductions of our earlier life experiences. Whatever we reason or fancy, whatever we expect or meditate about, whatever we hold before our minds as our knowledge or as our dream, is made up of the same material out of which our memories are shaped. In every case we have reproductions of earlier impressions controlled by a certain purpose. The most eccentric imagination cannot fancy a color which it has never seen, or a sound which it has never heard, or a taste which it has never tried. On the other hand, even the most faithful memory can never give us a complete reproduction of the past experience. Only that which serves the particular purpose enters into our remembrance. Not the character of the material, but the order which serves our end decides whether we speak of memory, or of knowledge, or of imagination.

To see memory in its relation to all those other func-

tions, we ought indeed to be aware of these differences of mental aims and purposes. Memory belongs to that much larger group of mental processes which represent our practical knowledge. The biological meaning of knowledge lies in its effectiveness for the guidance of our actions. We said before that every judgment means a new setting of our whole inner apparatus for activity. To know something about an animal means to set our inner world in such a way that we shall treat that animal in accordance with our knowledge. Memory represents that knowledge which renders the experienced order of things with a conscious reference to the time of the experience. But as knowledge the value of such memory ideas then lies in the fact that those remembered connections of things are still in our present actions important and influential. We have to deal with a thing differently to-day because, as our earlier experience showed, it has a particular reference to other things. Yet, if that is so, then in most cases it must make no difference whether I am aware that I have experienced the connection before. If I read the French word now, all that is needed for my reaction is that it connect itself with the English translation, but it is entirely indifferent whether I become conscious that I learned this particular connection between the French word and its translation at a particular time from a teacher or book. The characteristic memory reference fades away and the French word now means the English word to me at once. I associate the one idea with the other without referring it to any past. It enters into the filling of my present perception.

These after-images of the past may at the same time give content to our view of the future. Then we have ideas of expectation which we refer to the future event in the same way as we referred the memory ideas to the past.

Those expectations are also made up of earlier experiences, but their combination is controlled by our future actions. The purpose is thus a different one. We expect that the blackboard will be on the wall of the schoolroom to-morrow with the same certainty with which we remember its being there yesterday. Yet it was our earlier impression which furnished the content for that expectation. We have only omitted every reference to the past in this reproduction and refer it to the future because we intend to write something to-morrow with chalk upon that particular blackboard.

Of course, our education and instruction take care that the world of information is not confined to our own narrow sense experience, but is enlarged by the unlimited word experience. In reproducing the order of things, we can think of the Greeks and Romans as well as of our own countrymen, and we can think of the Himalaya as well as of the hills around us. The material of our personal remembrance includes in this way the experiences of mankind. We do not remember the Roman kings, but we remember the words which told us of them. Knowledge, therefore, represents the totality of our available mental material, combined in such a way that it is fit to guide our actions; and it is fit for that purpose when it represents the experienced order of things. Only in those cases in which it is important for our social action to see the connected facts in the light of a special past situation do we call it memory.

Still another group of combinations is given in our imaginations. Here, too, the mental product may refer to past, or present, or future, but this time the purpose is the satisfaction of our personal longing. A feeling motive stands in the center. We add to our thought of the past or to our present impressions and, most of all, to our expecta-

tions of the future, all which makes them responsive to our desires and emotions. Our imagination gives color to distant history and to our own life story. Our imagination plays on our present surroundings, our imagination makes us dream of castles in the air. But, again, it is our imagination which makes us inventive, which brings happy solutions of problems to our mind, not by the calculation of knowledge, but by the instinctive desires. It is a joyful play of ideas controlled by the demand for the satisfaction of an emotional desire.

Hence, we have many large groups of combinations of ideas, and that which we call memory is only a particular part of one of those groups. It is common to all of them that their material is the reproduction of earlier experiences and that their order is controlled by a certain purpose. The purpose is determined by a given situation. Where we are to think, we cannot simply dream; where we want to play, there is no use in calculation; where we try to remember, we cannot speculate. But the carrying out of the particular purpose must be dependent upon the collected material of ideas which are at the disposal of the individual and of the connections which have been acquired through the individual life history. The ways in which this collected material is linked in the mind are called by the psychologist the association of ideas.

To understand the interplay of ideas in all these activities, such as memory and expectation, knowledge and reasoning, imagining and creating, it becomes necessary to know something of the raw material in the pupil's mind. The association of ideas is in itself, accordingly, neither thinking, nor imagining, nor remembering, nor expecting. But the association of ideas furnishes the supply for all those purposive activities, and particular kinds of associa-

tion must favor or oppose those various performances. The doctrine of the association of ideas is as old as the science of psychology. The greatest thinker of the classical Greeks laid the lasting foundations. But only in most recent years have the psychologists turned to the study of the individual differences in association and of the characteristics of the young mind. Such individual differences show themselves most typically as soon as we apply the methods of the experiment.

The association experiment demands that a word be called out, or a picture presented, or a word shown. Then the first word which enters the mind is to be uttered. I shout "Book" and the boy calls "Teacher"; I say "Snake" and the boy answers "Frog"; I may say "House" and he answers "Mouse." Such mere association in itself is no knowledge and no imaginative fancy, and not even memory. It may be on the way to either, but it has not reached there. Such an association experiment, therefore, allows the study of the mere material before it is shaped into our real, living, mental activities of thought and imagination.

If now, for instance, we give a hundred words to a number of persons and each time have them write down the first word which comes to mind, we can easily compare the character of the associations which are prevalent in their mental mechanism.

Of course, such a general statement does not indicate how difficult it often is to recognize the real character of such associations. The mere word frog does not indicate whether the image of a particular frog came to the mind or whether it was the general idea of frog, represented perhaps only by the sound of the word frog. A certain personal comment will usually be needed to interpret what

was really going on in consciousness. On the other hand, we have many means in our modern experiments to study still further details in this process of association. For instance, we may measure the time and may find out what kind of associations form themselves rapidly in the mind. It is easy to show that all our training and our habits, our interests and our talents have a great influence on such time intervals. The association oak—tree may be formed by any one; and yet he who is interested in botany associates it more quickly. And cow—milk, however familiar to every human being, will arise more rapidly in the mind of the child who has grown up in the country. A careful study of the association times often unveils the whole life history and the particular training.

As to the general differences of individuals, we might at least point to one group of traits which probably refer to real, inborn tendencies. A person who hears the word oak and thinks of a particular oak, might associate with it the idea of some other tree—for instance, elm. Perhaps his neighbor may associate a part of the tree and think of branches. And, again, another may think from the oak tree to the whole forest or the whole landscape of which it is a part. In short, the idea of the thing awakes in some persons the thought of another coördinated thing, in some persons the idea of a part, and again in some the idea of a larger whole. This same threefold tendency may recur, if we think of general ideas. The general conception of oak may awake in some the coördinated idea of elm, in others a particular kind of that general conception—for instance, gold oak, while others will go to the still wider conception of tree.

There we have variations which are characteristic for life. Children, as well as adults, have this tendency to

move in their ideas either to coördinated, or to superordinated, or to subordinated, ideas. But this general tendency must prepare the children in very different ways for particular studies, and, as we may add at once, for particular callings in life. The one type of association will lead the mind from the special case to the general ideas, the other type will rather lead from the general to the special. Even among the great thinkers we find such fundamental differences. There are inductive and deductive minds, there are born observers, and born speculators, and born inventors, and born experimenters, and born philosophers; and all these great differences show themselves in miniature copies in every classroom. No teacher who wants to stimulate the children to their utmost efficiency can ignore these different tendencies of association. Yet, again, it must be added that it would be shortsighted to draw the conclusion that the children ought to be separated according to these mental traits. On the contrary, the instruction ought to supplement the inborn tendency by training in that which nature neglected. But the teacher must know which is which.

Still more important may it be for the teacher to be aware of those characteristics of association which belong to the child as such as against the associative traits of the adult. The chief emphasis should be laid on the fact that with the intelligent children the association in the form of individual ideas decidedly prevails. The word awakes the idea of a concrete instance, and this particular idea awakes another of the same concreteness. The child hearing the word cat thinks of a special cat, and if he associates with it the word dog, again the particular dog of his neighbor is in question. That is in striking contrast to the habits of intelligent adult persons. Their training and develop-

ment has brought it about that the association cat—dog would go on essentially in mere general conceptions. The experiments have demonstrated that this form of mere conceptional word-association in a child is, on the whole, a sign of weak intelligence.

An especially great rôle belongs to the feelings as links between associated ideas. Anything which awakes a special kind of feeling suggests to the child ideas which have a similar feeling tone. The average time of associations is always slower for children than the average of associations with adult persons. The best studies that have been made in the field showed that, for instance, the word fish gave for boys an average association time of two hundred and twenty-three thousandth part of a second, for the average of adult persons one hundred and fifty-two; the word table, for boys one hundred and fifty-seven, for adult persons one hundred and twenty-three; the word white, for boys one hundred and ninety-six, for adults one hundred and thirty-five; the word blue, for boys one hundred and seventy-five, for adults one hundred and eighteen. The tendency of the child's ideas to remain in the same sphere is no less characteristic. The adult person moves from optical to acoustical, from acoustical to tactual experiences; the child remains always in the sphere of the same sense. Correspondingly, the same group of ideas has a tendency to persevere in the child. Images which have arisen remain effective for a longer time than in the adult. And if a certain type of association has come into the foreground, it easily perseveres through a whole series of association experiments.

Careful experimental studies with school children through a period of several years have demonstrated that the ability to associate fit ideas steadily develops. On the one side the time becomes shorter from year to year, on

the other the fields from which the associations are drawn become larger, and this is in a high degree independent of the supply of new ideas. Even the youngest school child has experienced enough in life to be able to associate many more ideas than he really brings forward. That which he acquires and must acquire through his period of education is not only new material, but the ability to reach out for his material, to have it easily at his command, and not to be confined to the most superficial and most usual connections. To have a rich ideational life, it is by far more important to connect easily than to have an abundance of ideational material. The twenty-six letters of the alphabet are sufficient to form all the dramas of Shakespeare.

CHAPTER XVIII

ATTENTION

The transition from the mere interplay of ideas to the activity of our attention means no real turn in the road for us. We have seen that it is arbitrary ever to separate the impressions and images and ideas from the activities and expressions and deeds. To us the whole organism was a reaction apparatus in which impressions and expressions belong together. Surely, the mere association is a passive, mechanical process. But we have seen that our real life experience does not bring to us mere association of ideas. Their interplay is constantly controlled by purposes which we select and by ends for which we are active. Our judging, and remembering, and imagining, and even our dreaming, are related to our doing. Hence, we face no new situation if we turn to that pedagogically most important activity which we call attention. Here, too, everything is determined by the impressions and ideas on the one side and by the reactions on the other side.

The aim of the attention is always the same. The purpose is to obtain a fuller and richer insight into the material which we attend. The reactions which we perform are subordinated to this end. As far as outer movements of the body are concerned, we are turning toward the impressions, we are adjusting our sense organs, we are fixating and listening, we follow with our movements every change

of the attended object, we are holding our breath, we are suppressing every activity which might interfere with the sharpest possible impression; in short, we secure for ourselves the best chance to get the maximum of the attended thing. Nothing is changed if, instead of an external thing, a thought, a suspicion, a problem, an idea, a plan is in question. We try to secure everything which is involved in it. Our attention as such does not approve or reject, does not alter or destroy the things, but it simply aims to hold them before the mind in order to get the greatest possible insight and effect. It is clear that it must be the vital process for education. The ideas and impressions of life rush on, and each stirs up the reacting mechanism, but they are of unequal importance for the practical purposes of man. Everything depends upon the power to give the mind over to a few things and at any time to ignore the remainder. But we must not give over our mind only to the chance appearance, but to all which is contained in the important offering of life—that is, we must learn to attend.

Whenever we are attentive, the reaction must have two sides. We do our best to get whatever we can out of the attended material. We focus our senses and our whole activity on the important spot. But that demands at the same time the negative function. We suppress all those actions which the not-attended impressions would demand. We write our letter, and therefore suppress the impulse to rush to the window when there is a noise on the street. If our psycho-motor apparatus is still in such a state that the voices on the street make us rush to look out, our letter is lost, our attention is gone.

Now we saw before that, as far as the external actions are concerned, these positive and negative activities belong

intimately together. Our nervous system is organized in such a way that if we do a certain thing all the opposite actions are inhibited. The channels of motor discharge are somehow blocked for them. If it were not so, attention would not be possible. Now we only have to come back to our previous claim, that those ideas become vivid which find the ways for action open and those ideas are suppressed which find the channels of activity closed. The whole process of attention is then explained. If now we look on it not from the motor side, but from the standpoint of inner experience, we find a fivefold happening. First, that which we attend becomes vivid in our minds. Secondly, it also becomes more clear. Thirdly, it develops itself; fourthly, everything which leads away is suppressed and inhibited, and, fifthly, we feel ourselves in adjusted activity. We must study all this in detail.

We said that the idea becomes more vivid. We must sharply separate that from the greater intensity. We may listen to the faintest tone of the violinist, a tone which is hardly audible, and yet which fascinates us and takes hold of our mind most vividly, without its becoming in the least more intense. A whispered word may stand out most vividly in all its weakness of intensity, while the loud noises around us may remain without any vividness and almost unnoticed. From the vividness we distinguish the clearness. The clearness of the object is secured when the various parts of it are spearated from one another; in the not attended content of the mind the elements are fusing and blending together. Everything which is in the background of our mind is melting into a unity without sharp demarcation lines. If we stroll through the streets, the people who pass by form unities in which the details are not separated from one another. As soon as a face or a

gown attracts our attention the features are separated and discriminated and each is fixated in our mind in its own characteristics. The vividness refers to every element; a single element can become more vivid. But the clearness belongs to the manifold; a single element can become clearer only in so far as it becomes more strongly distinguished from the others.

We claimed, further, that the object of attention develops itself in our mind. It becomes the center of associations. For instance, what we discriminate awakes in us words and names, and gains connections with what we know. New and ever new fringes become attached. The thought connects itself with its consequences, the object with the idea of the appropriate volitions. And just in this way the purpose of our attention becomes fulfilled. But we saw that everything fades away in the mind which would lead to opposite actions. In the overexcitement of the battle the soldier does not even feel the pain of his wound; in our absorption in our work we may not only forget our engagements, but may inhibit the hunger for the meal. Finally, we feel in our mind the sensations of those bodily adjustments, those motor impulses, which secure the adjusted attitude, and this sensation of our own activity gives us most strongly the feeling that our attention is our own work.

It is evident that these five factors stand in closest correlation. That adjusting activity which we feel is not only accompanied by greater vividness, but leads backward to a sharper and clearer view of the object. This clearer view again reënforces the impulse to the adjusted activity. Moreover, it is the clearness and vividness which secures those associations in which the idea develops itself. And the richer this development the more all the opposite ideas

must be inhibited and crowded out of the mind. But the more the opposite ideas are suppressed the greater the opportunity for the attended idea to control our reactions. And in this way we have a circular movement by which our attention grows from its own resources.

To be sure, this growth has its narrow limits. The stronger and the longer the effort, the more fatigue must set in, and the wonderful mechanism of our mind secures an automatic correction there. Any fatigue sensation works as a stimulus for the opposite reaction. The fatigue finally breaks open the channels of activity for the opposite deed, and as soon as that opposite pathway is open the ideas which lead to that new action must become vivid. Then our attention is wandering and fluctuating. What was at first inhibited gains in power, and, supported by the feeling of fatigue, it destroys the first setting of the attention. The new idea becomes vivid, but as soon as in this way the fatigue is removed the chances for the first stimulus are improving. A rivalry sets in; the first impression gets control again, and thus the attention may alternate or may become distracted by any disturbance.

We speak of passive, or involuntary, attention when the impression or the arising idea opens the channels for the attending activity by its own power. Everything which is loud, or sudden, or shining, or impressive has its natural chance. In the same way everything which is surprising, everything which has a strong emotional value, everything which connects itself with our hopes and fears forces itself on our attention. There is no effort needed to attend our toothache, or to look at an accident which happens on the street, or to follow an absorbing novel. But there is much active attention necessary if, instead of the toothache, we

are to observe our tactual sensations for half an hour; or, instead of the accident, a chemical substance on the laboratory table; or, instead of the novel, the irregular verbs of a foreign language. In all these latter cases we have to open the channels of reaction ourselves—that is, we must associate ideas which secure the reaction where the reaction would not follow from the given material. We speak, therefore, of an active, or voluntary, or mediate attention. Anything in the world can be object of such indirect, active attention, and thus become interesting in consequence of the ideas which we furnish as supplement. The most trivial spot in a landscape may hold our attention if we know that it was the place at which an important historical event happened.

If in this way we understand the mechanism of attention, we can easily see where the interest of the teacher must center. He must ask what factors can help toward the vividness and clearness and self-development of the impressions, what factors help toward the suppression and inhibition of the not attended, what factors lead toward the voluntary, active attention; he must further inquire what secures a lasting attention, what the natural limitations of attention are, how far we find individual differences, how far these differences are influential on the whole work, how far characteristic differences between the attention of the child and of the adult exist, how far attention can be trained, how far it develops itself, and how far it changes without any systematic training. Such questions, within the last few years, stand in the center of experimental pedagogy, and the psychological laboratories have at last begun to shape their investigations with direct reference to the needs of the teacher. To go into the rich details of those most interesting studies is, of course, out of the question

here, but at least in a few directions some characteristic points may be mentioned.

A sudden stirring up of attention is easily produced. Wherever a sharp contrast with the foregoing material is introduced—something surprising, something unusually intense and loud, something amusing, something important, something threatening—the child's mind will adjust itself involuntarily and everything else may be for one pulse beat of attention inhibited and suppressed. But such attention can be only of slight importance for the life in school. The teacher would degrade himself if he were to secure attention by his jokes or by unexpected gestures; and even that would share with all other pedagogically improper means the fate of being rather ineffective after a short time. Every contrast of feeling must quickly fade away, and even that which forces attention by its brightness and clearness or loudness can hold the mind of the child only if it steadily progresses in its intensity. An attention which is entirely secured by means from without can never have that permanent character which alone secures the unfolding and deeper development of the attended material. Above all, such passive attention does not contribute anything to the training of the mental activity. The mind is carried hither and thither, but does not learn to move by its own efforts.

This does not involve the desirability of the opposite extreme. It does not mean that the greatest gain is reached when the attention is constantly forced on material which is uninteresting and which has no power in itself to attract attention. Moreover, such an effort would be frustrated by the inability of any mind to overcome the fatigue of attention. After all, inattention is not always a vice of the mind, but is a desirable safety valve. The experiment

demonstrates the limits of our powers. Any one of us may look steadily for five minutes at a written or printed word, such as "table" or "space." In the first minute we see the word and understand its meaning, but soon our attention cannot persist; the meaning fades away; our eyes still see those dead letters, but there is no longer a word. Teachers ought to remind themselves of this very simple experiment, and ought to carry it out for themselves before they force the child's attention through mere dreary repetition on the same uninteresting content for a long while. Even the simplest sense impression may teach us the necessary fluctuation of our attention. We may draw a square and the two diagonals; it looks to us like a standing pyramid. Now we try to hold that before our mind, but, in spite of our best efforts, it suddenly transforms itself and becomes a hollow pyramid, and after a little while it slips back and becomes solid. In short, the apex turns toward us and away from us alternately while our attention is helpless.

Thus, we are unable to rely simply upon the effort for attention. We must give to the attention the chance to act in accordance with its own laws. We must offer to the attention material which allows a shifting and a change. But all that points to the necessary middle path between the two unreasonable extremes. A mere attraction from the outside without inner effort or coöperation is wrong; a mere inner effort without interesting material and without chance for change of attention is no less wrong. Both are contrary to the fundamental life conditions of the mind. That which is needed is an engagement of the attention by material which becomes attractive through that which the pupil's own mind furnishes, and it must allow a shifting, but a shifting in the midst of the attended material

itself. To begin with the latter, attention can indeed find all its needed changes without fatigue, if the attended material offers sufficient inner variety. We cannot attend a straight line for half an hour, but we can easily attend for half an hour Raphael's "Madonna." There is no need for the attention to move away from the painting, because in the object itself it can shift from line to line, from color to color; and every new movement from one focus point of attention to another reënforces our interest in the whole. The greater the manifoldness of connections in the attended material, the richer the relations, the fuller the meaning, the more significant the parts, the more important the ideas involved, the more responsive the pupil's attention will be. It can shift and change and remain always fresh without leaving the work and without the mind wandering outside the classroom.

Yet the other factor is no less important. This manifoldness and richness must not come from without. It must be supplied by the experiences and knowledge of the pupil himself, and must be found, must be discovered, must be elaborated by his own efforts. This alone is the truly productive attention. Only that which finds associative connection counts for real growth. Whatever remains isolated may attract attention, but is ineffective. And yet even this demand is only half the story. To secure the ideal effect, those associative links must be sought by the effort of the pupil himself. Under this condition only does every act of attention become a training of the personality which works toward true intellectual culture. The old pedagogical prescription, that the teacher ought never to introduce new material which could not be welcomed by the accumulated ideas and experiences of the child, must therefore be applied with discrimination. It

is surely true that the teacher must prepare any material so that it may be apperceived by the child and be welcomed by his attention. But this preparation is very unpedagogical if it has simply furnished beforehand everything which makes any coming idea interesting and attractive.

The pupil should have to do his own work in securing those significant relations. The teacher must prepare the interest only in so far as he must make the child able to find connecting links; but the pupil himself must really find them. The pupil must learn how to secure his own true attention to that which would be monotonous and tiresome without his self-activity. He is to be prepared for a life which shares with every human life the fate that most of it is tiresome unless the interest is supplied from within. Instruction which makes everything attractive in itself may yield an acquaintance with many things, and yet may be much less valuable than instruction which focuses on fewer things, if this concentrated work trains the power to develop interest in that which finds no natural welcome in the mind. To find the right middle way is the true test of the teacher, and the use of this middle way by no means excludes wisely chosen occasional excursions to either side. The teacher may sometimes rely on an entirely external forcing of passive attention, perhaps by brightening the instruction with humor, or by mechanical means of loud shouting, or by attractive pictures, or by mere repetition; or, on the other hand, he may, and must sometimes, appeal to the voluntary effort of the pupils to focus their attention on something which has not become at all interesting. He may do so by admonition, or even by threatening with punishment, or by training with written and oral work which forces the voluntary attention. No sharp demarcation line can exist there. The tact of the teacher and his

instinct must decide what mixture is appropriate, but the conscientious teacher must know that the appeal to the involuntary attention is least helpful for the true development of the child. And that means that the teacher must learn resignation: his easiest triumph is his smallest success.

Inasmuch as we emphasized the motor aspect of the attention, it is natural to consider how far the training and development of attention can be secured by motor processes. This is indeed a factor to which highest importance belongs. We distinguish the positive and the negative side of the motor adjustment—that is, the performing of those actions which are adapted to the attended thing and the suppression of those actions which would lead away from it. Both can be secured by systematic training; and such a training really means a strengthening of the power of attention. It seems that the negative factor is even the more important. The child must learn to suppress the unnecessary movements, the superfluous impulses which distract. The pupil cannot learn to be really attentive if he is allowed every haphazard movement and every play of his muscles when he is to attend to his lesson. Even the demand for a straight position, not fatiguing, but indicating control of the body, will be helpful. The careful adjustment of the motor impulses in fixating and listening, in writing and reading and drawing, is a constant schooling of the attention. Yes, it is evident that in this sense even systematic gymnastic training will do some service. The motor processes then work backward on the mental states. The careful adjustment of the motor organs reënforces the vividness and clearness of the ideas, and the suppression of the opposite actions secures the inhibition of the interfering thoughts. The shiftless mind can be most directly forced

into service by a systematic control of the motor response. The misapplication begins only if the motor activities are reënforced in such a way that they themselves enter into the center of attention. The mental balance then becomes disturbed, and that which was to secure attention becomes an element of distraction.

But the importance of motor training for the development of attention leads to the question of individual differences, as there cannot exist a general prescription which fits those children who are naturally indolent and inexpressive and those others who are naturally inclined to vivid movements and to strong expression. The individual differences in the character of the attention are indeed manifold. They are the most fundamental differences of men, perhaps more responsible than anything else in our mental make-up for the difference between success and failure in the various callings, in a certain way even between genius and the average ability. All such differences show themselves from early youth. The experiment can point to them rapidly. The carefully observing teacher can find them by watching the behavior, the work, and the progress of the child.

If we arrange the simple scheme of showing for a few seconds to the children of the class a card on which ten colored squares are pasted in irregular order and ten pictures of well-known objects are attached and ten letters or ten short words are printed, we quickly discover fundamental differences in their tendency to attend. If we ask them beforehand to give their attention only to the colors, there will be some who do not see anything but the colors and who cannot report afterwards about any picture on the card, while others have seen the pictures almost as well as the colors. Beginning with such an ordinary form

of attention experiment we pass to more and more complex formulations. If while the child is looking at those colors or those pictures, a noise is made in the room or a sentence spoken, there will be some whose attention is decreased by the disturbance to such a point that almost all of the pictures are lost, and there will be others upon whom the disturbance is without influence.

If we show single pictures in various rhythms, we shall find some pupils who can attend only the slow impressions, others who can adjust the attention to a rapid succession. Yes, we shall find for almost everyone a particular rhythm which is best for his adaptation of attention, and the individual differences may be great. In a similar way we might measure the length of the time during which the children can maintain their attention. There will be some whose attention is rather intense but quickly becomes fatigued, others whose attention is more superficial but can be maintained at a fair height for a long while. In short, the whole type of adjustment and fixation, of expansion and distribution of attention, or intensity and responsiveness of attention, of voluntary and involuntary response shows the greatest possible variations in the classroom, and the teacher would move in a fictitious world if he were to presuppose that all the children before him were able to offer to the world the same type of average attention.

The logical consequence of this situation is not easily drawn. Some might question whether the children with different kinds of attention ought not to be trained in a different way from the beginning. There are types of attention which are evidently unfit for careful observation of natural objects or for mathematics or for foreign languages. Just as later when a man may be a good lawyer but would be a poor physician, or may be a good engineer

but would be a poor teacher, we certainly advise him to progress in that line in which he can do his best; so, too, we might confine the lessons of the child to those studies for which his attention is predisposed. The other extreme would be to emphasize the community of our life duties and therefore to demand that these natural differences be extinguished by the systematic training of the school. Again, the wise way will be the middle path. A real disappearance of those differences cannot be effected anyhow. The fundamental attention type seems to outlast all artificial training. Yes, it is doubtful whether an attention can be strongly developed in all directions, whether a concentrated attention and an expansive attention would keep house together; and the teacher will make his instruction by far more productive if he adapts the work to those varieties of powers. On the other hand, there seems to be no doubt that the one-sidedness of the individual tendencies must not be reënforced, but overcome. And the experiment demonstrates that to a certain degree such changes of attention type can be secured. The tasks of life are indeed too complex to be fulfilled in the best way by a one-sided type of attention. Even the tendency to concentrate oneself becomes dangerous if it too strongly inhibits all the rival ideas. Our attention must be flexible and while the child must learn to fixate his attention on one point and to maintain it, it is not less necessary for him to learn to pass easily from one thing to another, and perhaps to do several things at once.

In many American schools the children are obliged to do their studying and written work in rooms in which other children are reciting. It is a miserable situation which undermines the concentrated attention of the children, but it certainly has had the effect of training whole

generations in the power of distributing attention. The loss is greater than the gain, as it is more important to learn to do one thing with a fully absorbed mind than to be able to do many things together in a superficial way.

Whatever the individual types may be, the need of a training of voluntary attention is the one demand which must be common to all. Still another aspect must always be before the teacher's mind. Whatever the type of attention may be, the child's power of attention is undeveloped as compared with that of the average adult. The attention of the child is always more liable to being distracted. It offers less resistance to any incoming disturbance. Moreover, the child's attention shifts more easily and fluctuates. As a matter of course, the child's attention is also by far more predisposed for sense impressions than for thoughts and ideas. The adaptation of his attention is slow and its fatigue sets in quickly. Every one of these factors makes it necessary to adjust the instruction to each stage of the development of the child, as far as a demand on his attention is concerned. He cannot observe like an adult, he cannot follow like an adult, he cannot persist like an adult, he cannot be interested like an adult. And yet the instruction would sin unpardonably if it were not steadily making serious demands upon the child's attention. Other functions of the child grow with the mere passing of years; the child's attention grows only through systematic and careful training.

CHAPTER XIX

IMITATION AND SUGGESTION

We want to speak of imitation, suggestion, and effort; and yet after all that only means that we want to go on speaking of attention. Did we not recognize that the chief significance of attention lies in its power to give us more and more of the attended-to material? Every single trait of the process served this end. The mind seeks to get a deeper insight and firmer hold on the object of attention, aims toward the unfolding and fuller effectiveness of its object. The actions and the suppressing of the opposite actions, the vividness of the impressions and the inhibition of the opposite impressions all coöperate to make the contents attended to clearer and stronger and more lasting in consciousness. How will it be, then, in case the attended-to material is the idea of a bodily movement?

If we give our attention to the idea of a movement, there is only one way to fulfill the purpose of attention: the organism itself must produce the movement. The performance of the movement then furnishes a new vivid perception of it and the mere idea of the action thus becomes reënforced by the fresh perception. We must not forget that the association between the movement impulse and the image of the movement is naturally most intimate. Through our whole life history we have experienced the movement and the corresponding sensation together.

Whenever we think of the movement, a certain impulse toward its realization arises in our nervous mechanism. Usually it is checked by more important ideas. The impulse arises in the brain but is not carried out into real action because we are engaged in other activities, and it is therefore inhibited by them in lower brain centers. But if we give attention to the idea of the movement we mean thereby that this idea becomes the controlling one, that no opposite ideas check it and therefore the natural result must occur. The idea becomes vivid by realization through actual movement. The idea of a movement attracts our attention most easily when we perceive the movement performed by some one else. Seeing our fellow beings in the act of performance, our attention is centered on the idea of that movement and the necessary consequence is our own performance of the same act. That alone is imitation.

There is no mystical will influence involved. By smallest steps the imitation of fellow beings goes over into the imitation of movements in unfeeling nature. If we fixate the movements of a pendulum, our whole body responds to the swinging movement by faint impulses with which we repeat the motion which we perceive. And again this is by principle no different from the effect of thinking of a particular point in space. If we hold between our thumb and forefinger a thread to which a metal ball is attached and with closed eyes think attentively of a special direction, very soon the ball will swing in exactly the fancied direction. This is the secret of the so-called muscle reading. A person attentively thinks of the place where perhaps a pin is hidden and the muscle reader grasps his wrist. The thought of the place discharges itself in motor impulses which indicate sufficiently to the sensitive fingers

where to seek the hidden object. The idea leads to the movement without any conscious effort. The imitative movement represents only the extreme case.

It is worth considering that this involuntary discharge is in many respects superior to the strongest intention. Let a boy press down the so-called dynamometer, a machine which registers exactly the amount of pressure which the hand exerts. Let him try to use his greatest possible strength. We can still heighten it if we encourage him, if we promise him something, if we appeal to his good will. And yet the experiment shows that he can go beyond the highest point which he reaches through mere effort, as soon as we ask him to look at how we do it ourselves. Seeing another press down the button gives an additional strength to his brain centers which mere good will was unable to secure. No teacher can afford to neglect this reservoir of energy which becomes available as soon as imitation is at work. But here again we must not draw an artificial line of separation between the external and the internal activities. To imitate spoken words is no different from imitating the pressure of a button, and to imitate the speaking of a word is by principle no different from the imitation of thoughts and preferences in the inner mind. We must always keep before us the general point of view that words which we hear and see are substituted for the things, and that the words which we speak are substituted for actions in the social world. We imitate the ways of thought just as we imitate the ways of movement, and psychophysically the mechanism is the same.

The imitative tendency of the average child is much stronger than that of the adult. In the last third of the first year of life imitation sets in and soon takes hold of the most important factors of the child's development. By

imitation the child learns speaking and later writing and reading; by imitation he learns the social behavior and the decent forms of practical life; by imitation he submits to the standards of truth and beauty and morality in his surroundings. Of course the mechanism of imitation does not work to perfection. But just the imperfection of the success becomes the vehicle for the inner development. If only movements which have no concrete effect were in question, the incompleteness of the imitation would not be noticeable to the child. In most cases, however, everything centers on the final effect. The imitated word is ineffective if the hearers cannot understand the sound produced, the imitated drawing does not satisfy unless others can recognize the thing which is sketched, the imitation of throwing a ball cannot give rest if the ball does not hit. The anticipated idea of the purpose and the resulting effect thus disturb each other in the mind and this conflict demands new and ever new effort, until the tension is relieved by a complete harmony between purpose and result. The child tries again and again and in this way perfects the nervous paths of transmission until the successful imitation becomes habitual.

Yet it would be one-sided to consider every difference between the model and the imitation as due to lack of skill and success. The imitative tendency of the child has its natural limitation in the opposite desire to assert his own tendencies and his individual traits. The two factors together build up the consciousness of a true personality. The child develops the personality by doing as others do, by thus becoming an equal of the others, by asserting himself with the same powers and same abilities and same successful performances which mark the personalities of his fellows. But he develops within himself in another way

the consciousness of his own personality by being different from the others, by not entirely submitting to their ways and by feeling the originality of the variations from the pattern. Here again the action is involuntary; the child does not aim toward an emphasis of his originality, but the particular ways in which he differs from the given examples in his reactions are slowly felt as features which contrast with the other children.

Both factors are equally indispensable. There is no originality which is not essentially imitative. Even the most important thinker thinks in the ideas of his age and of his social surroundings. What is added is always small compared with what is accepted. On the other hand, no life lacks originality. The inherited disposition and the particular fate from the cradle to adolescence secure an abundance of mental and bodily connections which cannot be duplicated by any other being. But while both factors, the inventive and the anti-inventive, are present in every child, their relative importance is extremely varied. And again the important question may arise how far we should yield to the preponderance of the one or the other, and how far we ought to work toward a better balance. In any case the extremes must be avoided. The child who simply imitates will never be completely prepared for a full life task, and the obstinate child who always wants to be different will be out of contact with the world in which he lives. Indeed, training can change both tendencies. To develop spontaneity in the imitative mind and to develop submission in the stubborn mind is an important task of the teacher.

The imitativeness of the child demands that in the years of plasticity he be surrounded by influences worthy of imitation. These certainly must not be confined to

good models for his drawing and good music for his singing and good manners for his behavior and good morals for his actions; but it must extend over the whole sphere of educational interests. All this indicates the extreme importance which belongs to the personality of the teacher. He is the natural model for the imitation of the pupil. His diction must purify the language of the boy who too easily imitates the slang of his playmates, his considerateness and kindness, his conscientiousness and thoroughness, his enthusiasm and unselfishness must be a constant source of help to the imitative child. Even the originality of the child must be controlled by this influence. The example of the teacher sets the limits within which the deviations of the pupil may move. The teacher must become, in a way, the imitated model for an original freedom from imitation. The pupil imitates the personal spontaneity of the teacher and thus learns the use of his freedom while he is supported and guided.

Yet the full meaning of the importance of the teacher's personality for the imitations of the pupil is not entirely understood until a further feature of attention is considered. We saw that all attention presupposes a certain rivalry of inner impulses. If we see or hear something and there is nothing present which would draw our mind in another direction, we have a perception but we can hardly speak of attention. We saw that the act of attention is complete only when we give ourselves to one experience, and at the same time suppress rival impressions which lead to opposite actions. The ordinary act of attention is performed when a certain idea by its strength or its emotional value or by its associations or by its frequency breaks open the channels of discharge. But now there is still another way possible. It may happen that our mind

enters into a state in which the incoming ideas find everything prepared. The opposite ideas no longer have any chance to come forward at all. They are inhibited, however strong they may be. There is no longer a fair rivalry. Those ideas for which the mind is prepared have the right of way, they lead to actions, control the whole inner life, and suppress the opposite ideas. This power of the idea no longer depends upon its own merit or its own strength or its own value, but upon the setting of the mind and brain. The psychologists call such a state suggestibility, and the impressions and ideas which influence the suggestible mind are called suggestions.

It is difficult to say how such suggestibility can be explained. We may suppose that somehow the channels of motor discharge become especially wide open. It may be that changes in the blood circulation in the finest blood vessels of the brain cells are responsible. The best scientific study of suggestibility can be made, as so often, in the extreme cases where the process is exaggerated and therefore shows more distinctly the characteristic features. Now we have such abnormally exaggerated suggestibility in the case of hypnotism. Hypnotism is indeed nothing but abnormally heightened suggestibility. In the hypnotic state the mind must accept the offered idea, must attend to it and can no longer produce any opposite ideas. Hence the hypnotized person acts queerly, as if he had forgotten all he had learned in his earlier experience, and is completely dependent upon the words of the hypnotizer. Such a strong exaggeration of suggestibility takes place, of course, only under the artificial conditions of a hypnotic treatment.

But the milder degrees of suggestibility certainly belong to our everyday life and yet are no different in prin-

ciple from those abnormal hypnotic appearances. There is no true hypnosis except by the influence of another person. Yet it is not a mysterious reaction of will on will. The changes go on entirely in the imagination of the hypnotized person. His own brain enters into a state of less resistance during the hypnosis, simply through his belief in the power of the hypnotizer. In the same way we must conceive of the effect in normal life. It is the belief and the confidence in our own mind which makes us suggestible for the ideas which certain other persons propose to us. The authoritative relation in which the teacher stands to the pupil favors this suggestibility in the young minds most highly. It is a kind of overattention which the child offers to the teacher and the result is that the pupil imitates the teacher's attitudes and actions to a degree which goes far beyond the ordinary imitative impulse.

Of course here, too, individual differences are marked. We all are more suggestible in states of fatigue or emotional excitement. Women are more suggestible than men. Yet if there is one difference most characteristic, it is the fact that children are more suggestible than adults. Experiment has demonstrated this in recent years with exact figures. As in the case of attention and imitation, it holds true for suggestion that there is no demarcation line between the external action and the life in words and ideas. We insisted before that every judgment, every acceptance of an idea, is a kind of inner decision and action, a new motor setting by which we are prepared for a certain later movement. Our beliefs are, therefore, just as accessible to suggestion as our actions themselves, inasmuch as those beliefs are ultimately preparations for actions. The suggestibility decreases almost steadily as the child grows older. For instance, if a picture is shown to children for a few

seconds and then a number of questions asked which refer to the content of the picture, we can easily introduce such questions as suggest to the child objects that did not exist in the picture. If we show the picture of a room in which there were no chairs, then ask: "Were there chairs in the room?" a slight suggestion is given. Yet the child who is but little suggestible will be able to resist it. But if we formulate the question: "How many chairs were in the room?" the resistance will be much more difficult. The child then really believes he saw some chairs and gives a positive reply. If experiments with such pictures are made with children from the seventh to the fifteenth year, the result shows that the number of wrong replies with the seven-year-old children is almost double the number of such products of suggestion with the children of fifteen years.

As a matter of course, the ordinary, trivial things with which the child is well acquainted are more easily believed than the unusual ones. There are many ways to find quickly the different degrees of suggestibility in a class room. We may show a number of similar pictures one after the other and ask the child to keep in mind one in particular. After a little while we let the child choose that one among the whole group and finally we ask him seriously whether he is sure he has chosen the right one. The expression of our doubt suggests to the suggestible child a revision of the judgment, while the less suggestible will stick to his choice. To discriminate quickly between the suggestible and the unsuggestible pupils we may show them two circles of equal size and write inside one a small figure, perhaps 21, and inside the other a large one, 98. The suggestible children believe that the circle with the higher number is the larger.

In any case, however large the individual differences may be, the suggestibility of the child is rather strong, and a powerful tool is given into the hands of the teacher by it. He must not feel discouraged in its use by any of those popular misconceptions, as if suggestion and suggestibility were something abnormal and therefore unwholesome, perhaps even mystical. It is true, as we saw, that suggestibility is at the bottom of hypnotism, but the abnormality lies not in the suggestibility, but in its exaggeration. Every mental state abnormally exaggerated becomes pathological. Too much sadness becomes melancholia; too much gayety becomes mania. There is no mental state which cannot be the symptom of a disease if it becomes too strongly developed. The normal suggestion is in itself a healthy, indispensable factor of mental life. All our social activity depends upon it. We could not have any conviction or belief, we could have no politics and no religion, if our minds were not suggestible. Ideas which come from certain quarters must find us especially ready to accept them; there lies the strength and the enthusiasm of our life.

From a psychological point of view, we emphasized that suggestion is in its last meaning only a particular form of attention. Accordingly, the teacher has not the slightest reason to avoid suggestion. But just because it is a powerful influence, he has the more reason to use it considerately and wisely. He must never forget that any word spoken by him falls on soil prepared to an unusual degree in the suggestible mind of the child. He must, therefore, feel conscious of the deep effect which his praise and his blame, his encouragement and his discouragement must have. The pupil who feels in his suggestible mind that the teacher believes in him, believes in his good side, in his noble qualities, gains confidence in himself and is raised

to a higher level of activities. The feeling of authority produces in a wholesome class room a state which is indeed not unlike a mild hypnotic relation. The best effort of the child can find therein its most stimulating conditions. But at the same time it is a condition in which the slightest mistake of the teacher can seriously injure a young mind and undermine the whole school life of the child.

CHAPTER XX

WILL AND HABIT

THE psychologist has to chop his material into small chapters if he is to present it, and accordingly he must speak of the human will as a new factor of mental life after dealing at first with thought, imagination, attention, and so on. But the psychological reality is not cut into such pieces and when we considered attention and thought, we already practically had to do with intention and effort and will. In the laboratory of the psychologist the will has resolved itself into elements just as much as the ideas. What are the features of will which are common to every true volitional experience?

One fact stands in the center. Wherever we have the consciousness of a will action, an end must be reached which is grasped beforehand by the mind. Everything else is secondary. If we do not anticipate the end, we never have a will. Wherever an end which can be reached by our own deed is held in mind before the action itself sets in, we know that we are acting by our own volition. It makes no difference whether the end is a performance of our muscles or a shifting of our thoughts, whether we move things or words. If I try to remember the name of a bird which I see and it finally comes to my mind, I feel its appearance as the result of my will effort; I was seeking the name and secured it by my volition. Of

course that name itself was not anticipated in consciousness. I did not really have the name in my mind; otherwise I should not have sought it. But what I was seeking was, after all, something which I could not express, but which was fully determined beforehand in my mind. I knew that it was the name which I had heard and which others used, and therefore that unknown thing in my mind was really identical with what I finally found when the right name slipped in. If, instead of it, the sight of that bird had brought to my mind any number of other associations, the memory images of other birds and forests, I might have experienced a rich stream of ideas, but whatever came to my mind would have been unintentional, because it would not have corresponded to that which I anticipated.

Now, to be sure, if we have to do with an external action—if I rise to take a book down in my library, it seems as if a new element had come in. Here, too, of course, the end is in my mind beforehand. I think of the taking of the book before I move my arm toward it; and again it is fundamental that the foregoing idea of the end corresponds to the final effect. Yet it seems as if the most essential part is left out after all. Is there not a middle process, a feeling of impulse, an act of decision, between my thinking of the book and my getting up and fetching it? Is not the whole mystery of the will inclosed and hidden just here? But an exact psychology has nothing to do with mysteries. A careful analysis can disentangle this last impulse experience, too. Yes, it is easy to demonstrate that in reality this is nothing but the foregoing idea of the first movement to be performed in order to reach that final end.

If I think of taking down the book, the final stage depends upon the first step, the getting up from my chair.

While I have the book in mind, I am conscious that I need a series of movements before I can reach it. If I give up the idea of looking into the book, I do not need those auxiliary movements. The entering into the first movement decides whether the whole action is to be carried out. Accordingly, I must have in consciousness the idea of the first motion as the real cue for the whole process. This idea of the first movement preceding the movement itself is the whole content of that which we usually call the feeling of impulse. It is, indeed, of decisive character, inasmuch as this idea of the first movement leads to the movement itself. But then it is clear that this impulse feeling is again only a special case of that general fact which we recognized, that the effect must be preceded by the idea of the effect. The impulse feeling is such a foregoing idea of the effect with reference to the first bodily movement to be performed. A further act of decision does not exist. In other words, the whole conscious experience of volition, including the feeling of decision and impulse, is made up of the balancing of rival ideas of ends. One of these ideas secures predominance, associates itself with the idea of the first movement to be carried out, and this mental state discharges itself into the movement. We have the feeling that it was our own will which brought it about, because that final end reached corresponds to the preceding idea of the end.

From this standpoint we see clearly that all our reasoning and imagining and attending rightly gives us the feeling that we ourselves are active in it, that it is an inner will activity. All logical thinking is, indeed, different from a mere chaotic rush of hazy ideas by the one fact that the ideas move toward an end which is anticipated. If that movement is made to solve a problem, then its solution

is the end which we have in mind and which controls all the helping movements, just as the idea of taking down the book controls my getting up from the desk. In the same way the real artistic play of imagination is not a mere dreaming without purpose, but a movement toward an ideal end. The end is controlled, not by a problem, but by the demands of feeling and emotion. Yet only those ideas can move forward and only those chains of thoughts and of images become realized which ultimately serve that imaginative end. Therefore, we feel our mind in a volitional effort when we create beauty in our consciousness. Still more strikingly does all this hold true for attention. Attention is thoroughly a will act, because the end which is reached is indeed anticipated in consciousness and the whole inner process dominated by that end. The end is the unfolding and greater clearness and vividness of the given content. All the adaptations and adjustments of the body, all the suppressions of antagonistic actions, all the inhibitions of opposing ideas serve the end which we have in mind beforehand. And for this very reason we feel the act of attention as a will act; and even the so-called involuntary attention becomes a kind of enforced will act.

But with the same right we might now change the point of view and might say that every will act is based on attention. The attention given to the idea of an end to be reached by our own activity must lead on to the unfolding of that idea and that means to its realization. How the auxiliary processes are going on we do not know. That means that we, as thinking and attending subjects, do not know; as psychologists, we know quite well. As psychologists, we know that our brain cells are doing the work without any coöperation of consciousness. Whether we look at it from the point of view of attention or from

the point of view of volition, the end is before our mind and the idea works itself out in the millionfold connections of our brain and nerve cells, with all their rivalry and mutual reënforcement and mutual inhibition and with their acquired paths of least resistance. The associations arise, the motor impulses are stirred up, the ideas shift, the muscles are contracted, all without our conscious selection. I do not know which muscles I need to take down my book from the shelf; I think of taking down the book and I perceive the movement of taking it. How one has brought about the other is no concern of my conscious volition. My will relies upon the correct play of this mechanism. But the same is true for the movements of our ideas.. I may will to translate a word into another language or to solve a mathematical problem or to think about a plan; and in every case the whole array of necessary ideas, of inner trains of thoughts, of inhibitions, of words, and of inner actions goes on in accordance with the end. We are not aware how the idea of the end is securing this smooth performance.

The success of the will depends, therefore, only upon the power to hold the idea of the end sufficiently against all inhibiting impressions and rival ideas. If the idea of that end dominates it will take care of itself and will work itself out in those actions by which the end becomes realized. And from this point of view, we see that which is essential for the will of the pupil. We recognized that the child's attention differs from that of the adult in its easy shifting, in its inability to stick to one goal. Then exactly this must be the fault and weakness of the child's will. What the child must slowly learn through his development is the power to hold the end of the action steadily before his mind. There is no special will faculty to be trained, no special mental

power which arranges the transition between the idea of the end and its realization. No, it is the attention to the end which demands persistent training through school life. This training is then essentially a formal one. To learn to will this or that is unimportant. The first demand is to learn really to bring to action that which is aimed at and not to be pushed away by any chance impression. We mentioned the strong suggestibility of the child which makes him yield easily to outside influences. The resistance to the haphazard temptations of the surroundings must be reënforced, the overcoming of fatigue must be developed; in short, persistence must be learned.

It is not in contradiction with this statement that the small child may sometimes show attacks of stubbornness, just as the attention of the child may sometimes, for instance, at play, show an unusual continuity, almost a fascination. There we have to do with phenomena which belong to the sphere of suggestion. Such stubbornness or such fascination of attention are passing autosuggestions. The fundamental trait in the child remains the easy shifting of attention and will alike. The individual differences are certainly great and the temperamental variations which the lives of the adults around us show can certainly already be found in the class room. We know the energetic and the phlegmatic child, the impulsive and the lazy one. But however strongly the pupils may differ from one another, their average in persistence and energy of the will falls far below that of the average adult and especially below the average of those adults whose will really had the blessing of sound education.

Here is practically the center of the educational influence: to do what we really will means to do our duty, and

no aim of education stands higher than that of securing this power to hold before the mind that which we will with our deepest volition. The inefficiency of our modern educational systems grows, above all, from the neglect of this formal training of the will. Mere learning can never be a substitute for this training of the mental energy. Yes, the habitual rushing to new and ever new impressions may easily interfere with the development of persistence in the character. On the other hand, it is evident that practically all school material and every group of influences may serve the development of the youthful will. Everything can be helpful in training the child's mind toward a firm maintaining of an end. The smallest work carried through with thoroughness serves such training. Any work performed superficially hinders it. Whether the will is adapted and submits to the one or the other kind of material makes no difference, but whether the will is allowed to start on one thing and to be pushed to something else, or whether it is forced to hold on against all difficulties makes the difference which counts for life.

In this connection, again, too much emphasis cannot be laid on the motor side of the process. The external bodily movement is, after all, that realization of ideas of activity which can be most easily controlled and most easily reënforced and which supplies to the young mind most directly the sensations of its own activity. Where the will is weakly developed, the physical exercises and external movements will most immediately throw into consciousness a vivid feeling of action and through it the material for consciousness of will. Everybody who has had to do with feeble-minded children knows how surprising the effect in their inner life often is, as soon as their external actions

are brought under sharp control, as soon as all meaningless movements are suppressed and the adjusted movements are enforced.

There is no more efficient means of training the normal child as well. The physical exercises of gymnastics, of sport, especially of manual training are of high service. The careful, exact movements in speaking, in writing, in drawing, but also in the small practical movements of daily behavior, in dressing and eating and sitting and playing must furnish the subtler adjustment, thus developing a refined power of controlling the ideas of ends. And without a sharp demarcation line this motor carefulness and thoroughness and persistence in speaking and choosing the subtle actions leads to the same characteristics in the retaining and forming of words and memory images and free ideas. We have seen sufficiently that their development is no less dependent upon motor processes. Needless to say that the more subtle these motor responses, the higher is the development of the volitional power. The strong football man, with all his energy for certain coarse responses, may have small intellectual energy. His attention has been focused on a narrow field and that has hindered the development of the will power for the finer and subtler elements. The great thinkers are seldom remarkable athletes. Everything depends on a skillful leading from the coarse actions to the refined ones, from the actions dealing with things to the actions dealing with ideas. But fundamentally it is the same process; in every case the same formal training is needed. The power to will is the one function which is entirely dependent upon training or neglect. An education which spoils the mind and never demands real effort, which simply follows the likings and interests, leaves the adolescent personality in a flabby and

ineffective state. On the other hand, the pupil whose will power is trained will be strong in his sphere, even though his gifts are small.

While this formal training of the will is of superior importance, no education can neglect the need of directing the will toward worthy objects of willing and of enabling the mind to carry through its intentions by correct means. In both directions psychology must show the way. We saw that the individual at his work does not know or understand how the idea of an end selects the right motor levers in his organism. Our ideas and thoughts express themselves in spoken words without our consciously choosing the right movements of lips and tongue and vocal cords, and in the same way every other action presents itself ready made before we know which muscles are needed for the activity. No training or learning ought to change or would be able to change this situation. But what can be changed and improved by learning is the mechanism which transforms the ideas into the right actions. However promptly and unconsciously our intention of speaking or walking, of writing or sewing, of multiplying or translating, may be carried out in the brain centers, we certainly had to acquire the particular connections in a life of education.

No one of these activities was secured by the child without failures at the beginning. The idea of the end, even if it was only a simple grasping with the hands or fixation with the eyes or whistling with the lips, produced some motor effect on the given paths of least resistance. If such paths had not existed at all, the infant would not have had a starting point for his development. But the effect reached in every instance was at first only an approach to the intended end. Long training is necessary

to secure the particular end with satisfying completeness. The unsuccessful trial produces a mixed state of mind, a satisfaction as far as the effort approaches the aim, a dissatisfaction as far as it falls short. The complex state of mind, then, works as a new stimulus for the repetition, which maintains those parts which were efficient and replaces the wrong impulses by better adjusted ones. Thus, the child tries and tries again to grasp and to fixate and to whistle, to read and to write, to jump and to throw a ball, and at a later age to perform complex activities such as typewriting or bicycling. The development is specific; the formal training of will is general. The will which has learned to resist distractions can hold its own in any field. To be sure, to learn whistling with accuracy does not help to ride the bicycle or to run the typewriter. Yet this specific character of the training must not be exaggerated. It is, after all, not only the one specific kind of movement which is trained, but the whole group of movements which involve similar activities. In training for baseball, we do not train for football and still less for piano playing. But by training for baseball, we secure general alertness in our motor responses.

Everybody knows from practical life how extremely great the individual differences are in such motor development. The delicate experiment of the psychological laboratory can easily analyze this ability and can demonstrate the improvement in every special feature and the influences which contribute to it. It will separate the steadiness and precision of movement, the variety of actions, the rapidity of the voluntary control, the endurance and quickness of the reactions of muscles, the accuracy of the coördination, the suppression of symptoms of fatigue and many other features. All experiments agree in the re-

sult that the progress is at first a slow and then a more rapid one; furthermore, that the progress is not uniform, but goes on by jumps. The influence of physical conditions constantly shows itself. For instance, in experiments made with tossing and catching two balls at the same time and then counting the number of consecutive catchings, the maximum figure resulted after long, refreshing walks, the minimum after sleepless nights.

An overstrain of attention may be a hindrance in the building up of such powers. The successful effort is the most essential condition for progress. Every complete satisfaction with the result evidently brings about a new setting and settling in the nerve adjustment. This is full of pedagogical significance. It suggests that the mere repetition alone does not secure progress, inasmuch as only the successful practice helps toward the desired setting of the central nervous system. If the same movement is simply repeated and repeated, fatigue will bring unsuccessful results, which directly interfere with the forming of the new paths of least resistance. Of course, the chief rule is to build up the new, complex movements out of the simple ones and to make use of all motor dispositions as soon as nature offers them. Every suppression and every indulgence, every stimulation and every neglect of the tendencies to motor impulse must count in the final outcome. The more manifold the starting points for the connections are the more easily will they be acquired. For instance, experiment shows that a melody, with the accompanying text of words, is learned twice as soon as the same melody sung with the uniform syllable *la*. Every rule which characterizes the formation of these paths for the external movements is no less binding for those internal movements which the words and images require. Here, too, the com-

plex must be built up from the simple; here, too, the increase of ability is not uniform.

The climax of this development is reached in the formation of definite habits. The building up of habits represents in a way the opposite of the formal training of the will. This formal training works toward a power of the individual to realize new and ever new ends. The forming of habits has its purpose in making will effort superfluous. Of course, there is no contradiction in these two ends, inasmuch as the habits disburden the will and thus give to it the chance to adapt itself to higher purposes. If our reading and writing had never become habitual with us, it would absorb our will energy instead of leaving this energy free for concentration on the thoughts which we are to manifest by our habitual ways of reading and writing. The larger the sphere of activities which have become habitual for us, the greater our freedom of combining these movements in the service of greater aims. The danger begins only when the habits cover ground which ought to be left open to the decisions of the will, inasmuch as every habit presupposes a uniformity of conditions. The habit is, therefore, harmful to the true aims of the will if it has settled in fields in which the conditions vary and where new adjustments are needed. Hence habits enrich us and make us free to give our efforts to higher aims, but habits also enslave us and resist our efforts. Education must be most careful to consider both aspects of habit formation. The fundamental rule for the development of habits is certainly to begin with a strong resolution and never to allow an exception. The number of positive repetitions is by no means so important as the continuity of the series. Every exception interferes seriously with the forming of the new paths of least resistance. The child who is

to develop any habit of action or behavior is served worst if a weak indulgence allows him occasional exceptions. Every opportunity for repeating ought to be made use of.

This can be directly translated into the sphere of inner activity. The mental habits demand exactly the same treatment. To form habits of spelling, or grammar and style, or of observation and generalization demand the same rules as the habits of good manners at table, or of dressing, or of bicycling. In the world of ideas, too, every slip counts and every break undermines the new tendency. And in the case of mental and physical habits alike it is important to acquire them in definite forms and never to let them go on by chance. It is much easier to learn precise habits than loose ones.

Finally, we have said that the will demands the right guidance. The end to be willed cannot be left to haphazard conditions. Every moral factor in the school life, every suggestion and every example of the teacher, every ethical doctrine of history and literature must contribute. But that leads us to the chief determinant of our volition, to the feeling and the emotions.

CHAPTER XXI

FEELING

THE chief motive of human actions lies in feelings and emotions. If education is to secure certain actions, the safest way will be by developing certain likes and dislikes, pleasures and displeasures, enthusiasms and aversions. The æsthetic, moral, and religious feelings, the personal love and hate, sympathies and antipathies will determine the individual life. But here, again, the separations of psychology suggest too much of a demarcation line, as if the feeling and the will were completely detached factors.

The word feeling is easily misunderstood in its psychological meaning. The usage of the word in daily life lacks precision. We may discriminate, even in the simplest so-called feeling, two states. We may call a headache a feeling, but that headache contains, first, a certain content which we dislike, and, secondly, this dislike. We dislike the headache not otherwise than a disagreeable taste or smell. The pain of our headache, which is the object of our dislike, is then only a sensation, just like a foul smell or a sharp taste, which we detest, too. In ordinary life we call the pain sensation itself also a feeling, while we should not call the smell a feeling, simply because every pain sensation is so constantly connected with our dislike, while smells, like sounds or colors, may be sometimes disliked, sometimes liked, and oftener may be indifferent. We are,

therefore, more accustomed to detach the other sensations from our liking and disliking, while the pain is so constantly accompanied by a dislike that we are less accustomed to separate the two elements. Exactly the same holds true for the opposite—for those bodily sensations of tickling or organic gratification and relief. They also are fusing with our attitude of liking so completely that we consider them as a unity and call the sensation contained also a feeling. In the stricter scientific use of the term we must confine the word feeling to those attitudes of liking and disliking; the pain and the relief are then merely sensations, like touch and sound.

If now we discuss the simplest case, that of the dislike in a pain or of the liking in a pleasant experience, it becomes clear that the relation to the will action is not simply that of a preceding motive. The pain feeling makes us withdraw our body; the other stimulus, the agreeable one, makes us approach with our body. In the one case we aim toward breaking up the unpleasant intrusion, in the other we aim toward the continuation of the pleasant impression. But can we now really say that the liking makes us approach the object and the disliking makes us shrink away from it? Is not our shrinking rather that which furnishes us with the feeling of the dislike and the approach that which gives us the feeling of liking? Is it not merely a different standpoint from which we look on the same fact, if we call it in one respect a feeling and in another respect an action? If we consider that reaction with reference to the effect to be reached, we call it an action. But if the sensations which these activities of approach and escape furnish are used for the apperception of the stimulus, then they stand simply as expressions of liking and disliking. The stimulus is disliked, inasmuch as it is joined by a

feeling of our repudiation, and that means by our escape and rejection. The stimulus is liked, inasmuch as its perception is joined by the awareness of our approach.

Thus, the liking or disliking does not really precede the action, but is itself an action which works toward a continuation or discontinuation of the stimulus. A reaction becomes feeling tone if it is not apperceived as an activity, but as an interpretation of the thing which provoked it. Wherever the action leads to an external change of the thing, of course we naturally take it as an action. If the change refers to ourselves, we are more inclined to interpret it as a feeling. But usually both aspects can be combined. The stimulus awakes the idea of the reaction, and this reaction attitude becomes the feeling value of the outer thing. But in the next pulse beat of our mind we connect the same reaction with its practical consequences in the world, and under that point of view consider it as a will action. Then we have the impression that the feeling value preceded the will action, while in reality we only have two aspects of the same fact.

Certainly it might be answered that this approach or escape was determined by the foregoing pain or relief sensation, and that even if psychology does not care to call them feelings, they represent the element which guides the action. This is quite true, but then these elements have no privileged rôle. Every stimulus may produce reactions. The light which reaches our retina brings about an eye movement; the sound which comes from one side produces the turning of our head. Each quality, each locality and each intensity of stimulation has its characteristic response. Hence, the pain and pleasure sensations produce the reaction, not on account of their particular disagreeableness or agreeableness, but on account of their particular quality.

The disagreeable smell is just as much a motive for action as toothache, and the agreeable smell just as much as the pleasant tickling. But the real feelings, the liking and disliking as such, do not lead to the act, but are actions.

From this standpoint we understand better the present-day discussion as to the manifoldness of feelings. Some psychologists claim that there is only one pair of feelings, liking and disliking; others that there is also a feeling of tension and relaxation; others that there is still a third pair, excitement and rest. But with exactly the same right we might add any number of feelings, or, better, any number of pairs of feelings, inasmuch as it is characteristic that we cannot think of any feelings otherwise than in a relation of pairs. This relation itself already points to the action character of every feeling. Indeed, an action always demands its opposite. The truth is simply that any mode of action perceived as interpretation of the thing which excites it becomes a feeling for us.

By feeling we merely mean the reaction of our personality on the impression, and we can have as many feelings as we have types of reactions. Some impressions certainly make us excited and others bring repose to our muscular system; some produce a tension which seeks relief, and others secure a relaxation; some give to the whole motor system a slow, solemn rhythm, and others produce a hilarity of light, easy reactions. There is no end to this manifoldness. Yet it is not by chance that we are usually inclined to consider that one pair, pleasure and displeasure, as the fundamental feelings, inasmuch as they correspond to the most fundamental reactions. Pleasure is the reaction by which the continuation of the impression is secured, and displeasure is the reaction by which the stimulus is broken off. No other reactions can compare in importance.

We may add at once that naturally this continuation is usually secured by a movement of expansion and the breaking off by a movement of contraction. The group of muscle sensations which accompany a general expansion thus stand for pleasure in our self-consciousness and the contracting sensations for displeasure.

Yet this is only the simplest case, and even on this level the situation becomes more complicated. By the inherited disposition of the nervous system many secondary factors help to reënforce such reactions. The stimulus which demands a breaking off or continuation spreads in the central nervous system toward other centers which regulate the breathing and the heart beat, the tension of the blood vessels, the glands, the lower nerve centers—in short, the whole peripheral organism. The pulse becomes quicker or slower, the limbs become more or less filled with blood, which means a change in the blood supply to the brain; the breathing changes in rhythm and depth; and all these functions seem to stand in some useful relation to the final reaction. On the other hand, all these reactions also contribute certain organic sensations, so that if a pain or a tickling comes to the mind, a whole group of organic reverberations joins and gives background to the reaction.

This repeats itself with practically the same means when life leads from the interest in the outer world to the experiences in words, and signs, and inner images, and memories, and imaginations. The reactions which at first have been acquired for the outer things now become symbols and expressions for those inner experiences, with the same effect of working toward the continuance of the agreeable or the stopping of the disagreeable mental states. The idea is pleasant if the whole personality reacts by all its motor responses and associations in such a way that it

approaches, reënforces, maintains the idea, and the inner state is unpleasant if the whole inner movement works toward stopping the content. The more the child grows toward the apprehension of a world of words and signs and memories the more these inner reactions prevail, and the habitual resounding of those organic sensations which originally refer to the outer world continue to give color to the feelings of the inner world.

This situation complicates itself in the so-called emotions. Again the reaction is the central purpose, but here the emphasis lies on those organic processes and inner movements which are to secure and to reënforce the reaction. We might say that the emotion has to focus the whole organism on a particular line of action. Just as attention focuses the idea against all inhibiting rival ideas, the emotion focuses reaction and inhibits all other possible activities. The more complex our life the more manifold are the impulses to action which are interfering with one another at any time. The emotion is an organic wave which sweeps over the whole central nervous system and suppresses and cuts off everything which is not related to the source of the emotional excitement. Certainly the strength of this energetic reaction brings with it a vast overflow of energy, and therefore many superfluous side effects result. But they are unavoidable in the interests of the great task of concentrating the whole organism on one line of reaction. In this sense the emotion, too, does not precede the action, but is itself an action; and yet, if we emphasize more those processes of organic reverberation, those changes in the associations and motor settings, those vague inner states which reënforce the reaction, we recognize at last that part which may be said to stand between the impression and the reaction itself. It becomes daily

more probable that these "vague" states are the mental accompaniments of toxic changes in the brain, resulting from the activity of certain glands.

If the undeveloped feeling of the child were to be characterized by one feature, it certainly would be its lack of steadiness. If at first we confine ourselves to the simple, fundamental reaction of liking and disliking, we must notice the rapid changes and the haphazard character of such feelings in the child. His laughing and crying are near together, and the flickering mood is entirely controlled by immediate impressions. At first only the states of his own body excite feeling. Hunger and fatigue and bodily irritation are disliked, mild stimulation and nourishment are liked; later, the things of the outer world and the fellow beings give pleasure or displeasure, and finally the stage is reached when words are substituted for things, and the objects of thought become the sources of satisfaction and dissatisfaction. But at every stage the equilibrium of the young mind is unstable, the feelings are shifting, just as the attention shifts.

Moreover, the child's feeling is narrow and egotistic. It is an expression of those biological instinctive reactions which are inborn in the disposition of the nervous system and which are necessary for every organism. But for man they must be only the starting point. As long as the feelings are only reactions on the immediate excitement they are unadapted to the complexity of the social life in which everybody has to spend his days. Nature provides only the animal feelings. The whole world of civilization has to furnish a system of artificial feelings, which constitute the value of our social existence. The simplest æsthetic appreciation, the faintest trace of ethical estimation, is due to a development for which nature does not provide.

Here we have reached the point from which it becomes clear why we took so much pains to analyze what is loosely called feeling. It may seem quite indifferent whether our pleasure and displeasure is only a vague, general, inner state which cannot be described any further, or whether it is really, as we described it, essentially a motor reaction. But if it comes to the question of education, it makes all the difference. If the feelings were really what popular psychology is inclined to make out of them, the task of their training and education and artificial molding would necessarily seem hopeless. The teacher would be obliged to stand by and wait for the natural growth. What could he do to change the resounding of the mind if nature caused such or such a wave of organic excitement to spread over the nervous system? He could not change candy tasting agreeably and cod liver oil disagreeably any more than he could change the grass looking green and the sky blue. There would be no handle and no hook by which the feelings could be grasped. Even admonitions and punishments could not better the situation. The teacher would have to confess that, while he might compel the child or persuade the child to swallow the disgusting cod liver oil in spite of his dislike, he would not be able to change the displeasure into pleasure.

The ordinary view of feelings forces on the teacher, if he thinks about it consistently at all, a discouraging pessimism. The most important factor of inner life seems outside his control. He must simply wait for the changes. He certainly will notice how the changes come. He may find that the little children like the colors of yellow and blue best, while grown-up people more often prefer red. But he must wait with idle hands. How different is his perspective if he recognizes the motor element in every feel-

ing and if he understands that the feeling itself results from the reaction! Nature, indeed, has provided the numberless organic responses which slowly unfold themselves in the growing organism, but these responses, inasmuch as they are grouped about definite motor activities, are under the control of attention and will, and are therefore accessible to all the influences which can play on voluntary control of body and mind. The unsteady plasticity of the feeling reactions in youth even furnish the most favorable conditions for such an influence, and the suggestibility of the child and the ease with which habits are formed in youth improve the situation.

Those movements in which the feeling expresses itself are involuntary, but every one of them is under voluntary influence—that is, the attention turned to the idea of the movement can change or inhibit it. Suggest to the child that he take the disagreeable medicine with laughing face and with a wide expansion of the whole body, that he open wide his eyes and stretch his arms—in short, try to secure artificially all those motions by which a great pleasure would express itself. If in this way he opens wide the channels of discharge for those movements which are opposite to the involuntary reaction, and if he repeats that experiment with a little persistence and energy, very soon the disagreeable medicine will lose its unpleasantness and become neutral. On the other hand, let him often take an indifferent stimulus with the external expression of rejection and disgust, contracting the muscles, drawing up the face as if to repel the intrusion, and very soon the connection between the sensation and the rejecting attitude becomes habitual and the indifference changes into displeasure.

Such overcoming of the instinctive reactions represents

an extreme case, but thousandfold are the opportunities for the changes where no deep organic instinct is to be extinguished, but where slight tendencies are to be reshaped and to be adjusted to the social ends. Imitation will naturally be the most important vehicle. At first the child does not care at all for beautiful decorations. He sees things only with reference to their usefulness. Now let him go through the motor response of acceptance and welcome when he is shown designs and beautiful ornaments; awake in him a new habitual reaction toward those harmonious relations, and new æsthetic feelings will arise in him. He will acquire feeling states which many a grown-up man in the social world around us has never known, because his education lacked the training in those motor responses. Hence, he who did not have this training stands before a picture only with an interest in the story told in the painting or before works of arts and crafts only with the practical interest in the usefulness of the thing, without appreciating the real beauty.

To a very high degree this principle can also be applied to the most complex emotions. We can reënforce and we can inhibit them; we can shift them and enrich them by a voluntary influence on those reactions which stand in the center of the emotions. These emotions have slowly grown through the development of new instinctive responses. The infant knows no fear, but he experiences certain complex reactions upon sudden strong stimuli. After frequent use these new paths slowly open with every new unusual impression. The reactions of astonishment or of anger evidently begin as motor responses, which work backward on the inner experience. The tenderness of the child for his mother begins even with obvious imitations entirely trained by the characteristic movements in connection with

certain tactual and visual sensations. And from such simple starting points one emotion after another is built up, and leads from the reaction on things slowly to the reaction on signs and symbols. Helpfulness, sympathy, and richer and richer moral emotions are formed if the right suggestions are given for the motor responses, if the right models are brought into the child's sphere for imitation, if by instruction and practical life ample training is offered for the expression and forming of habits. Truly, although the emphasis on the motor aspect of the emotional life may appear merely a topic for discussion among the theoretical psychologists, it becomes a life question for the teacher, who ought never to forget that the instinctive reactions are the raw material which he must use, and which he can influence by all the means which mold human actions.

This does not exclude the existence of individual differences in the emotional disposition, just as in memory or attention, and probably no education can or would try to extinguish all traces of these varieties. The optimistic enthusiast whose whole system is inexhaustible in its impulses to action will remain different from the phlegmatic person whose reactions are slow and weak and to whom the world is, accordingly, more or less indifferent. Especially those great individual variations of temperament in which the changes in blood circulation and gland activity and excitability stand in the foreground will be less accessible to educational influence. Still less ought we to think of a caricature of the proposed view by fancying that a mere external gesture could at all change a deep-seated emotion or feeling. The more our life has become adjusted to words and signs and memory images the more does the importance of those activities which refer to external things decrease. We may keep the emotion of grief, even

if we smile in order to hide it, and we may cover our impulse to fight by polite phrases. The reaction of the adult person contains too many internal elements still to need the external coarse action. Those various motor impulses go on, nevertheless, in the highest layer of brain cells, and they give us all the organic sensations of the emotion and all the associations and feelings which characterize it, even if their ultimate expression is stopped in lower centers of the nervous system and an indifferent routine movement is artificially substituted for the natural expression. In such cases the external smiling may even sharpen the feeling of contrast with the internal displeasure. But if we change artificially those internal responses, then we can really influence the emotion itself. There is no emotion which cannot be educated by attention, will, suggestion, imitation—in short, by all those factors which change the motor response.

We emphasized repeatedly the reasons why the recognition of the motor factor in mental life is of such fundamental importance for the explanation of life. Everything which goes on in the sensorial spheres shows in itself no principle of organization. With the actions it is otherwise. Those motor processes involve a characteristic organization. The impulse toward one action must reënforce the actions which lead toward the same end and must inhibit and suppress the actions which would lead to the opposite end. This mutual interplay of the motor processes gives a definite shape to the chaos of mental life. Nowhere can this be felt more strongly than in the emotional sphere. As long as the feelings are understood only in the usual way as affective elements which are different from the sensations, but which are experienced just like the sensations, and which simply occur on account of unknown

organic processes in the brain, we have no means to understand how they influence all the other mental functions. And yet their influence on attention and volition, on interest and effort, is evident. This is changed as soon as we recognize the motor setting which is given with every feeling. If every feeling is fundamentally a new disposition for action, brought about by a new opening and closing of paths for motor discharge, then it is evident that these other actions which we call attention and volition must be constantly influenced by the changes in feeling.

This intimate relation between the new motor situation produced by every feeling and the rest of the mental life gains a fresh importance in the light of recent studies in the sphere of abnormal psychical processes. The physicians have found that many disturbances of the mind, primarily those in hysteria, are the results of emotional experiences which, as mere experiences, have long been forgotten and have faded away, but the feeling effect of which works on in the cells of the brain. There may have been a disagreeable life experience which did not come to its normal expression and discharge. The expression was suppressed, and thus the motor impulse was not carried into the regular channels. The result is that a certain group of nerve paths is out of gear and now has a disturbing influence on the ordinary actions. Such a long-forgotten feeling produces mischief in the whole mental life, and may become the germ of a disease in a brain which is weak by its constitutional disposition.

Now, we are not speaking of disease here, but we may profit from those observations of the physicians for the understanding of the normal happenings in the healthy brain. We may draw the consequence that in every mind, and especially in the young, plastic mind, strong feelings, even

if their source has long been forgotten, may have an important influence on the development of the impulses and attentions and activities. The pleasant feelings will have a reënforcing, the unpleasant an inhibiting influence. Too often we see a child who simply does not do his best. It is as if something inhibits his strongest energies. He becomes apathetic and careless; he makes no effort. If we look to the bottom, we find that it has all resulted from a loss of self-confidence, and that the ultimate source of this lack of self-confidence is an inner inhibition which originated with some unpleasant accident, perhaps long forgotten. Some disagreeable emotion may have created a new motor setting which, by its inhibitory power, paralyzes the normal activities. Nothing is more likely to be responsible for such a situation than an injustice or ill-considered blame from the teacher. On the one hand it finds the pupil's mind in an especially suggestible state, on the other the unpleasant emotion cannot come to a full expression. The child must bear the injustice silently. A hasty, angry word or an unfriendly expression of mistrust on the part of the teacher, which may have pierced into the mind and settled there, may inhibit the normal mental life for years to come, even though the child no longer remembers the particular offense. The responsibility of the teacher grows in these directions the more, the better we understand the mechanism of the mind.

There are several remedies possible. Ordinarily, of course, the mere passing of time is the simplest. The motor setting slowly loses its strength and new attitudes may develop. But too many brains do not show this improvement; the disturbance becomes more and more aggravated. The child loses all his joy in work; he lags behind or is unmanageable. A complete change of impres-

sions, with entirely new excitements, entering into a new school or living in a new town, produces a perfect resetting. Yet the chief remedy is the one which can be deduced from the findings of the physicians. They have discovered that such a disturbance from an earlier unpleasant feeling can be completely cured if that earlier emotional experience is again brought to memory and is allowed to express itself forcibly. As soon as the emotion has once discharged itself in its normal way that pathological side-tracking comes to an end and the whole mental life is relieved.

In a corresponding way, the fundamental remedy for such a paralyzing emotion of the pupil is also the new awaking of the source of the trouble and the securing of a normal discharge. The full confidence of the child must be won, his deepest thoughts and feelings must be slowly brought to the surface. He must get a chance to disburden his mind of all those suppressed discomforts and must again come to harmonious unity of inner life. This feeling of confidence in the teacher, this intimacy which allows him to express his deepest excitement with frankness, will restore his confidence in his own actions and completely change the estranged child. But, indeed, the better way is never to allow such an extreme situation to occur, where a radical cure is needed, but to have this intimate confidential relation from the start. The teacher who has the sympathy of the child will easily remove such inhibitory influences before they grow into serious interferences with the efficiency and progress of the pupils.

The inhibitory influence of the unpleasant emotion is paralleled by the reënforcing influence of the joyful attitude. Here, too, the source of the pleasant excitement may be long forgotten, but the new attitude may continue

as a power for the strengthening of all activities. Joy works as an autosuggestion. We saw that suggestion indeed demands a new setting of the mind by which the suggested ideas have a fuller chance for their unfolding, while the opposites are suppressed. The joyful emotion has exactly this inspiring effect. If it has been implanted in the mind by the words and the deeds of the teacher, everything which refers to the school work will receive this autosuggestive, strengthening impulse. The interest, the effort, the industry of the pupil are the natural consequences. Effort is truly nothing but the working of autosuggestion, and no teacher who is aware of his opportunities can afford to overlook this strongest aid for his own purposes.

CHAPTER XXII

INDIVIDUAL DIFFERENCES

In our survey of the mental life of youth we have found individual differences in every field which we approached. The differences of memory and association were as marked as the differences of attention and volition. Thus, we do not have to approach a new problem, if finally we consider the manifoldness of mental individualities. No two children have the same faces, and the physical examination can show with much detail that in other respects as well no two organisms are alike. It is well known how the modern, anthropological, police methods identify any man by the mere imprint of his fingers. All this points to the innumerable manifoldness of bodily structure; and yet the mental variations are no less bewildering in their variety.

It is true that many of the personal differences which we find among adults are products of their training and education and profession and life experience. The years have sharpened the contrasts and have introduced variations which would have shown less at a tender age. But, after all, the child who enters into the classroom of the school also has already had a rich life history. The influence of his nursery, the personal factors of his family life, the surroundings of nature and of the home, six years of play and six years of effort to explore the world, six years

of successes and failures in walking and speaking and keeping well, have already molded the young, plastic mind and have heightened the individual differences. Every accident of child life counts, every disease and every act of neglect, every kindness and every encouragement has left its traces. The toys put into the child's hands, the talks carried on in his presence, good and bad nourishment, disturbed and undisturbed sleep, fresh and poor air, bodily care and bodily mistreatment, have summed up their effects before the child passes through the door of the schoolroom.

Yet the most fundamental differences remain those which are conditioned by the inborn dispositions. Of course, that does not mean that they are all developed and really existing at the time of birth. One month after another brings them to reality, and many may not appear before the period of adolescence, but the germs are present at birth and inner factors determine their unfolding. Every one knows that in regard to the mental equipment of the genius. No music lessons make a Beethoven, no physics instruction a Newton, no careful education a Kant, and no drawing lessons a Michael Angelo. But the case of the genius is no different in principle from the average Within the ordinary limits, the lack of talent may be replaced by persistent training. The pupil without talent for mathematics may, with great industry, reach the same point which the talented boy can reach without any effort. The original difference may thus disappear in the final result of the average boys, while it can never be leveled up where unusual talent is present. Yet the inborn difference of gift remains no less marked in the middle and lower region.

Moreover, these differences which exist from the start

are certainly no less fundamental in feelings and emotions and volitions. It is quite true that the life experiences shape the personalities; and yet to a much higher degree the personalities shape the life experiences. It is the inborn temperamental disposition and the native way of reaction which gives to the surroundings and to the outer influences of life meaning and significance. Under exactly the same conditions the one experiences the pleasant and the other the unpleasant stimuli, the one remembers the hours of sunshine and the other the hours of storm.

We have seen throughout that subjective response determines even the perception of the world. We inhibit and do not perceive that to which we are not attending. By our reactions we become conscious of that toward which we are acting, and every variation of our motor response has a backward influence on our experiencing of the world. The community certainly needs the variety of human gifts, and we should not be served better by a colorless uniformity. Social organization even finds room for the ungifted. What is needed is only a most careful insight into the variations.

The teacher who ignores this manifoldness of dispositions and works with an abstract scheme of human nature must be handicapped in his best efforts. A certain amount of individualization is therefore a wholesome demand of modern pedagogy, provided that it is not misunderstood to be a mere yielding to the personal likings of the child. The adjustment to the individual variations ought to secure on the one side the fullest possible development of personal gifts in the interest of the individual and of the community. It ought to provide, on the other side, the best possible stimulation of those mental functions which nature has neglected in the particular case. In a negative sense,

of course, it must also suggest a certain limitation for the demands of the teacher. Not every pupil is capable of reaching every goal.

There is no doubt that this whole group of problems, which evidently is purely psychological, is nowadays still much neglected in the schoolroom. The teacher judges the individual differences only from the final results; and yet these results are determined by combinations of many functions. The teacher is hardly aware whether the poor work results from insufficient memory, or attention, or volition, or imagination, or reasoning, or sense perception, from an easy fatigue, or poor association, or clumsy reaction, from defective experience or inhibited will. On the other hand, even special gifts and talents may remain unnoticed and may be neglected until they are crippled. Of course, the teacher knows in a vague way that certain children are bright and others stupid; that some are slow and others quick; that some remember better than others; that some are attentive and others restless; but he is hardly prepared to analyze any one of the factors into its real psychological components and to disentangle carefully the natural dispositions and the results of training and of effort.

Moreover, it might be asked whether the science of psychology was really prepared to give desirable advice until recently. On the whole, it may be said that psychology in its scientific shape, the modern experimental type, neglected the problem of the individual differences to a surprising degree both in the case of adults and of children. But, after all, this was not surprising, if we remember the origin of experimental psychology. It arose in opposition to a vague mental philosophy. Therefore its chief aim naturally was to seek scientific laws, to seek regularities in

the life of the mind which would be as general as the laws of physics and chemistry. This search for the laws of the mind for a long time suppressed the interest in that which is not common to all minds and which differs from man to man. Hence, the first decades of the work in the psychological laboratories of the world showed a uniform neglect of the personal characteristics, and only in most recent years has experimental psychology taken a new turn and entered with vigor into the careful analysis of individual traits. The more experimental pedagogy has branched off from experimental psychology the more this problem of differentiation has come to the foreground. And yet science is only in the beginning of its mastery.

Experiment can approach the whole situation with two different questions. First, we might ask whether the special mental functions can be diagnosed by experimental tests and examinations. The mental life of a pupil is constituted of many activities: are we able to measure, to study and to determine each of them by certain definite experimental inquiries? The pedagogical laboratory would furnish us with the most serviceable tools if it should give us devices to study and measure fundamental functions, like attention, reasoning, or memory by simple experiments, so that we might recognize the whole from a small fraction. But there would be a second possibility. The experimentalist might ask whether there exists a correlation between various functions—a correlation which might make it possible to recognize the whole mental make-up by testing one particular function. A number of variations might stand in such intimate correspondence that the presence of one would indicate and guarantee the presence of the others, just as a physician might recognize a whole

complex of symptoms, and thus diagnose the disease, from one special characteristic trait.

This latter problem has been approached repeatedly in recent years. For instance, pupils can be grouped in accordance with their general standing in school work, from the most excellent to the poorest, and then a number of mental tests can be made, endeavoring to find one which shows results parallel to the quality of the work. On such a basis it has been claimed that certain achievements of the attention correspond to the general efficiency of the pupil. Others believe that they have discovered that the ability to discriminate certain sensations—for instance, small differences of tone pitch—is characteristic of the standing in school. Still other results have been reported. But if we approach the situation without prejudice, we soon discover that not one of the proposed tests has been accepted by later investigators, and that at present we are without any sign of success.

We can emancipate ourselves from this rather vague grouping of pupils in accordance with their standing in school and, instead, may seek the correlation between the various mental functions. For example, we may study twenty or thirty different aspects of mental life, each one to be expressed in exact figures. Then we may try to find out whether those who are best in some tests are also the best in certain others, and, correspondingly, whether those who are worst in some are worst in others. We may seek those who are quickest in calculation or who remember the greatest number of words, or who show the most concentrated attention, or who have the sharpest discrimination of sensations, or who show the most energetic will impulse, or who are least quickly fatigued, or who solve a logical problem most correctly, or who have the most vivid

imagination. The question arises: is there a uniform result, or does excellence in one respect go together with poor results in another group of tests? Simple mathematical formulæ allow an exact measurement of these correlations, and they have been applied to most widely different psychical acts. Yet again the outcome ought to be acknowledged on the whole as so far a negative one.

Certainly, if we examine many functions, we always find some which show almost identical results, but these are usually functions which belong intimately together and which ultimately contain a common element. Those who are quick in their movements may also be quick in their thoughts. But we have seen that the rhythm of both processes points back to the same source. In a similar way, it is perfectly justifiable to take the handwriting as an expression of many correlated features, and thus to use it as a diagnostic means. It may indicate general accuracy, or energy, or superficiality, or carelessness, or affectation, or self-consciousness, and so on. But we have no facts which prove that a particular kind of intelligence may allow the conclusion that a particular kind of temperament, or of volition, exists along with it. Moreover, the frequent overdevelopment or underdevelopment of certain functions, together with an average development in most other functions, suggests from the start that such correlation is not even probable. In fact, we sometimes find marvelous memory with poor intelligence, sharp intelligence with complete obtuseness of emotion, richest emotion with narrow thought. The weak-minded men and the men of genius both show the far-reaching independence of certain fundamental traits of mind. Is it not, after all, this independence which gives to mankind the abundant manifoldness of social material, allowing in the inborn dispositions

a multiplicity of combinations which secures endless originality? The aim of bringing the working of a whole personality into a simple formula may therefore remain hopeless for all time. But all this only emphasizes the importance of answering the other question—how we can study with experimental exactitude all those various functions of which the mosaic of a mind is composed.

We may carry on such tests of psychical tendencies and capacities in various fields. The list of these has been greatly enlarged by psychologists and educators in recent years. To point only to a few typical tests which might easily be carried out in a classroom, we might mention first the study of associations and memories. We show a series of ten pictures, and with each one we call a number of two figures; one pair of picture and figure may be repeated twice, one pair may be emphasized, perhaps by giving a number of three figures, and thus surprising the class. Of course, one pair has the advantage of being the first which came to the mind and another pair has the special position of being the last which may linger in the mind. Now we go over the pictures once more in a different order and let the children write the numbers which had been called with the pictures. There will be some who remember that which was repeated, others that which was emphasized, others that which came first and others that which came last. The frequency, the vividness, the freshness, and the recency, therefore, have different influence on different minds. No doubt, there we have to do with different mental constitutions. To mention the faults of those minds, we might say that it is a commonplace mind which offers the best chance to that which came frequently and a superficial mind which sticks to that which came most recently, an emotional mind which holds what came

with a vivid surprise and a suggestible mind which gives predominance to that which came first.

To point in another direction, we may give a hundred words and let the child write down what comes into his mind first with each word. Then we quickly find those tendencies which we mentioned when we discussed the association process. A concrete thing may awake in some minds another thing of the same order, in some, a part of the given thing, in some a larger whole. And correspondingly, an abstract idea will awake in one type a coördinated conception, in another a superordinated conception, and in a third, a subordinated conception. That is, the idea of bird brings to one mind fish, to another animal, to a third, owl. But we might use the same material in still a different way, finding out which associations are most common in the class and as soon as we have grouped the majority of the associations, we can make an examination in the case of each pupil as to what degree he participates in those average associations and how many of the associations have his personal stamp upon them and were not shared by anyone else in the class. In this way we can measure the different degrees of originality of mind. But we might also group the associations as to their concreteness or abstractness, as to the prevalence of visual or acoustical or tactual or motor elements, as to their emotional flavor and many other characteristics. We have spoken before of the varieties of memory which are easily tested by the reproduction of nonsense syllables or of disconnected words. We might examine the differences between words which were heard and those which were seen, the fading away of the memory traces after various time intervals, the number of repetitions necessary for a correct reproduction.

A test which is of especial educational importance refers to that aspect of intelligence which characterizes the power of combination. We give to the child a page on which a story is typewritten in such a way that the spaces for certain letters in many words are left blank. In a given time the child is to fill out those blanks; and the number of spaces filled and the intelligent quality of the work are examined. Many similar devices have been proposed. The groups of the mental processes of attention, discrimination, and suggestion offer themselves equally well to quick-testing studies. No material seems more adequate than the reading of a short story or, still simpler, the showing of a picture with many details. How many objects have been attended to? To what extent can we influence the report by suggestive questions? How far does the report show determinateness and certainty in the statement? What type of observation has been prevalent? The discrimination may be tested most easily by the arranging of weights of different heaviness, or by dividing a distance between two points into halves, or by judging the differences of pitch of slightly varying tones.

The fluctuation of the attention can be recorded, if the child indicates by a movement of his hand the appearance and disappearance of a faint visual impression or of the ticking of a watch. There our interests would belong especially to the relation between the periods of concentrated attention and the periods of relaxation. Much emphasis has also been put on the sensitiveness to pain, produced, for instance, by a pressure against the temple. This was also one of the symptoms which have sometimes been proposed as characteristic of general intelligence. Children of excellent ability were said to be especially sensitive to pain. Such a claim cannot be maintained, but the

recognition of the differences certainly contributes to the general mental diagnosis.

Exactly the same is true of the differences of reaction times. A short reaction time has sometimes been overvalued as an indication of strong mental ability. This seems untenable, but the differences in reaction time certainly are important. Of course an exact measurement of the individual reaction time demands some complicated apparatus. In every case the idea is that an impression, a click, or a flash, or a touch, is given and the child must make the quickest possible movement of his hand in response to the stimulus. The time is about a fifth of a second and measurement of the differences demands subtle instruments which show at least hundredth parts of a second. If such exact measurements are taken, striking individual differences are indeed found. But the finer analysis shows that it is not only a question of quickness or slowness, but that the differences refer to different inner attitudes. The child who reacts slowly has turned his mind beforehand to the incoming impression; the other child who is more inclined to turn beforehand to the movement to be performed, has, on the whole, the shorter reaction time. It cannot be said that the one is better than the other, inasmuch as the experiment demonstrates that the greater quickness is paid for by a poorer quality. The child who gives all his attention to the movement neglects the impression and therefore sometimes rushes into hasty reactions before the stimulus has come in. The child who reacts with full attention to the impression needs more time, but is always correct. Hence the one is no better than the other, but they are different types. The one is predisposed by nature to be objective and the other subjective, the one gives his attention to the world and the

other to his own personality. They will become two different kinds of beings in later life.

The reaction time may be measured without such subtle instruments simply with the second hand of a watch, if not one individual but a whole group of children is to be measured. If the task is to compare the reaction time of fifty children of eight years with that of fifty children of twelve or fifteen years, or the reaction time of fifty boys with that of fifty girls, or the reaction time of fifty children who have had manual training with that of those who have had no manual training and so on, we can apply the so-called chain reaction. The children form a circle or a serpentine line, each holding the hand of his neighbor and we touch the left hand of the first. As soon as he feels the pressure he presses the hand of the next and so it goes on, each receiving a tactual impression in the left hand and reacting with the motor activity of the right. The last child reacts by lifting the hand. The time is measured for the whole class, and with fifty children, after a little training, it will take about ten to fifteen seconds. The differences of the groups will express themselves in the differences of time. This method is also suitable for the study of the fatigue of the children's minds. A class of fifty children may give the pressure from the first to the last in twelve seconds at the beginning of a recitation hour. If it was a fatiguing lesson, at the end of the hour the time may have become twenty seconds or more. But just in the case of fatigue, we need more than the measurement of the whole class. Few individual factors are so important as the variations with reference to the liability to fatigue.

Whether the energies of a child are quickly exhausted or can be kept for a long while at full efficiency decides a

large part of his school work and later of his life work. In this respect it is most important that the mere inner feeling of tiredness is no reliable source of information. On the whole, of course, the tiredness indicates the objective fatigue and its value for the mental hygiene is evident. A feeling of fatigue warns against misuse of and damage to the brain cells, just as a pain indicates a bodily injury which demands care. But this average experience shows individual variations in both directions. A feeling of fatigue may come up habitually after a very small degree of effort, long before any undesirable effect in the central nervous system is to be feared. Yielding to such an illusory feeling of fatigue would have a weakening effect on the whole personality. Such a child must learn to overcome the slight tiredness by new effort. On the other hand, there are not a few who often approach an injurious exhaustion without any subjective feeling of fatigue. A neurasthenic disturbance may indicate later that the safety line was passed without any inner danger signal.

Thus it becomes very essential to examine the tendency of the child to fatigue by objective methods. A large number of appropriate devices have been applied and the results show a certain agreement. The most natural way is to study the mental effectiveness in various stages of fatigue. This effectiveness may be measured by the rapidity of the work and by its correctness. The children may be made to count the number of times the letter e occurs on a page. It may be found how many seconds are necessary to pick out the e's on the page and how many have been overlooked. The fatigued child will need a longer time and will do more defective work. Yet such a task is too little similar to the demand of the school work. This is more immediately approached, if the task is to perform a

series of arithmetical calculations within a given time. Or to come nearer to the intellectual functions, the experiment may demand an answer to certain simple logical problems, or to use a test which we mentioned before, the filling of letters and syllables in a typewritten story in which blanks have been left.

Still more interest has been given in recent years to such tests as do not measure the fatigue of the mental state itself, but secondary effects of the brain exhaustion. For instance, it has been found that if we put two compass points—and a hairpin will do as well—on the back of the hand or on the forehead and measure the distance at which two points are felt as two, the result will vary with the degree of fatigue. On the back of the hand the two tactual impressions may be discriminated at a distance of perhaps fifteen millimeters when the child is at his best, while the same child after two hours of fatiguing work may feel at the same distance only one fusing impression, and the points now have to be separated by twenty-five or thirty millimeters. In a similar way the decrease of motor power may become a characteristic sign. The fresh child can exert a pressure which the tired child cannot secure. Among other features it may be noticed that the breathing becomes more superficial and the pulse weaker with increasing fatigue.

But it is not only a question of greater or less tendency to fatigue, of slower or quicker exhaustion of the psychophysical energies; experiments also demonstrate various rhythms and curves of fatigue for the whole day's work. There are some who are freshest in the morning, others who are freshest in the afternoon. And while examinations of whole classes hide these individual differences, a careful study shows that almost every individual has his

own distribution of greatest efficiency and easiest fatigue. Some are at their best after a night's sleep and become tired during the day; others rise in a still half-asleep state and through the small stimulations of the day they awake more and more until late in the day they are at their highest power. The individual differences of fatigue demand very different distributions of effort in order to secure the fullest efficiency. In the best case all general rules only compromise between the needs of the different individuals, and these compromises can do little toward leveling the variations, as such fundamental types of fatigue tendencies seem to remain characteristic for individual nervous systems.

To mention still a few more aspects under which the individual differences of the pupils may be and ought to be tested, it will be of high importance to study the ability for forming habits. The different extent to which various children profit by repeating newly acquired movements is striking. And likewise the firmness with which an acquired habit lasts in the psychophysical system shows many variations. The experiments may cover the ground from the simple throwing of a ball to the learning of telegraphy or typewriting. No less important is the tendency of the pupils to become distracted by external disturbances. We can measure simple attentive work in counting or copying or calculating with and without external disturbances, noises, or graphophone music. Or we may study the rapidity of adaptation to new lines of activity. One child goes easily from one thing to another, while many children can do good work only if they are kept in the same line for a while.

We have not spoken as yet of the differences in feelings, emotional responses, and expressions of feelings. Groups

of stimuli which produce strong pleasure or displeasure in some children may leave others neutral and indifferent. From simple colors and color combinations to beautiful paintings, from simple tones to artistic music, we may study individual differences of taste and enjoyment and measure the intensity of the reaction by the effect on pulse or respiration or movements. In like manner we may study ethical responses with all the degrees of moral feeling; and the more we enter into subtle analysis of such subjective factors, the more we recognize the fundamental differences in the make-up of those boys and girls who face the teacher. And every new recognition must remind him of his threefold task. First he must regulate the class work in such a way that each of those various personalities can respond and profit to a certain degree. That is, he must find a middle way which does not yield to one or the other mental constitution but offers a compromise. Secondly, he must develop the particular tendencies of the individual, which nature prepared, as far as they are valuable. No gift and no strong point ought to be overlooked in the classroom. And thirdly, that which nature prepared must be supplemented. Just that which is weak needs strengthening and that which is lacking must be supplied.

Yet all such prescriptions have their narrow limits. The work of the teacher can no longer be profitable to all the pupils, if the compromise has to be arranged with reference to boys and girls who fall far below the average children of their age. The psychological differences of the individuals must indeed lie within certain limits which demand serious attention. It is true that the lowest varieties of mental constitution, represented by the idiot and the imbecile who cannot learn the use of their mother tongue at all, will not appear in the schoolroom. The

community must take care of these unfortunates for whom teaching in the ordinary sense of the word is not in question. But it is different with those feeble-minded and retarded children who represent the borderland region of normal development. In many respects they have the appearance of normal children and only a small distance seems to separate them from the stupid, the naughty, or the lazy children whom every teacher has to find at the foot of his class. Yet careful observation cannot overlook the mental abnormity of certain pupils whose lack of mental power does not demand that they be grouped with the imbeciles. Their attention cannot adapt itself, their perception is defective, their memory is uncertain, their associations are slow and uniform, their judgment is helpless, their feelings are utterly unstable, their will is weak and suggestible, their instincts unusually impulsive and generally their bodies show disabilities.

Such children must be recognized as unfit for instruction in the common schools. If their presence in the schoolroom is ignored, they themselves must from year to year have less chance of becoming useful members of the community. They sink down through their inability to follow, become utterly discouraged, and do not profit at all from school. On the other hand, if the teacher does adjust the instruction to their inferior psychical make-up, the whole class is held back and must suffer unfairly. The only desirable solution is that they be taught in special classes in special schools, where they profit without disturbing others. It is the duty of the school and of the physicians to find out these defective children at an early stage. In our large cities thousands of them are still mixed with the normal school population. An insistent effort in such directions will also most easily discover those frequent cases in which

the deficiency is, after all, not one of the psychophysical constitution, but is the result of disturbances in the sense organs or of bad nourishment or of absurd acquisition of habits. The inability to spell correctly may be connected with an inefficiency of the eyes, the inability to speak well may depend upon an inefficiency of the ears; and an early examination may show the way to bring back such a deficient child to normal school work.

But the attention of the teacher and of the community belongs no less to those individual differences which characterize the "nervous" child. Diseases like St. Vitus's dance or epilepsy will be easily recognized. But the hysteric varieties, abnormal irritability, and psychopathic emotionalism may too often be overlooked. There may be children with unusual talents, yet at the same time with unusual defects. A lack of self-discipline and self-control may exist which makes all educational effort in vain. There is an abnormally quick fatigue, the attention has no resistance and while the intelligence may be in some respects brilliant, the memory is undermined by autosuggestion and the play of the imagination goes over into untruthfulness. Too often the nervous child suffers from the inheritance of a pathological constitution and the inborn weakness can never be completely removed. But in almost every case a carefully adjusted education can save much which otherwise would be lost. The teacher ought never to play the rôle of the physician, but the school physician will never reach his highest efficiency unless he is helped by the teacher who has his eyes open for those individual variations of pupils which are due to diseases in the nervous system.

We might seek the differences of the pupils in the schoolroom in still another direction. We might ask

about their mental equipment. There may be one child who has never seen green grass or a cow or a sunset, and another child who has traveled with his parents over the globe. One child may have been brought up in the slums, another in fashionable quarters. Moreover, we do not need the contrast of extremes. Even in the same sphere of external life the one child brought up in the father's library under the personal supervision of considerate parents, the other brought up in a nursery under silly caretakers may show no less contrast of psychical equipment. Careful statistical inquiries have frequently been made. The children who entered the school were examined as to the things which they had seen and heard and knew, and much valuable information was gained from that. But while all this goes on in the midst of the pupil's mind, it can hardly be called a trait of his mind as such. It is essentially a sociological problem to inquire what material has been gathered by a child before he enters the school. Certainly careful notice must be taken of it for the class-work. It would be absurd to presuppose in the instruction acquaintance with ideas which have never before reached the child's mind. But the teacher's interest in this kind of differences among his pupils is not psychological but pedagogical.

EDUCATIONAL PART

THE WORK OF THE SCHOOL

CHAPTER XXIII

SCHOOL INSTRUCTION

Our psychological survey has shown us the chief mental factors which influence the pupil's work and development. We selected them with pedagogical interest, ignoring those elements of the mind which are insignificant for the educational life. Yet we examined, analyzed, and explained those mental states mostly without direct reference to particular tasks in the schoolroom. It seems the most natural continuation of our study, if we finally ask how mental states are related to special fields of the school work or to special features of the school organization. For instance, what mental factors enter into play when the child is to read, or to write, or to draw, to make an arithmetical calculation or a French translation? Moreover, what mental factors determine the curriculum, with its selection of subjects, or the alternation between work and play and rest, between school work and home work? In short, we must ask at what point the understanding of the pupil's mind becomes important for the actual life in the school. Therefore, we finally enter the narrower sphere of education.

As a matter of course, only a small fraction of the world of educational problems lies before us. The modern study of education embraces numberless interests. It leads far beyond the school, to the nursery and the kindergarten,

to the educational influences of the home and the formative factors of the public life. Above all, it connects the school with the conditions and achievements of society. The school becomes a sociological problem, in which the economic, political, and social conditions are important. The administration and organization of the school, the technic of instruction and of discipline, the problems of hygiene and health, the relations of the school to higher institutions of learning and to the callings of men and women, and many similar problems demand the attention of the student of pedagogy. For us the psychological point of view has determined the limits of our horizon. The group of the psychological problems of education demands the focusing of our interest.

Yet, all the first part of the book demonstrated with serious argument that psychology can be only the tool of the educator. Psychology, out of its own resources, can never show what the aims of education ought to be. If we approach the application of psychology to some particular educational problems, we must have selected the special tasks beforehand on the basis of nonpsychological arguments. We learned how education selects these ends by ethical considerations. Our last part must, accordingly, be a combination of ethics and psychology. That means that we must go beyond the strictly psychological questions and must consider some general pedagogical problems, at least so far that we may understand the aims for which we want to apply psychology. In our first part we had only reached the point from which we recognized the general aim of education. From the standpoint which we had won there we must now point out how our general educational aim prescribes the particular ends of the school work.

We recognized that the general aim of education was

this: the child is to be made able and willing to realize the ideal purposes, and thus to help in building up a world of eternal values. We saw that every other apparent aim of education is ultimately meaningless and contradictory. We saw that it is hopeless to deduce the ends of education from the mere personal interests and selfish desires of men, and we also convinced ourselves that only this aspect of education gives to the teacher's calling and mission its nobleness, its inspiration, and its dignity. How far can the school bring the child nearer to this end?

It may be best to approach this complex problem in a theoretical way. We ask, first, what kinds of schemes and school work can make the child able and willing to realize ideal purposes. Of course, later we must examine how many of these theoretical possibilities can be realized in the curriculum of the school under the practical, given conditions. Our material is easily grouped. From the start we have separated the two aims of making the child able and of making him willing for the fulfillment of the ideal life task. We must emphasize the demarcation line. Many may be willing, but are not able, to realize their intention, but no less are there many able who lack the will. To be willing to enter into the upbuilding of ideal values demands a certain belief in them, an enthusiasm, a devotion —in short, a certain emotional attitude. To be able is no question of emotion, but a question of knowledge and training. Indeed, the ability divides itself into those two distinct spheres, the knowing and the doing. The acquisition of knowledge and the training of activity are equally needed, if education is to make the child able to help in the realization of ideal purposes. Whether practically the knowing and the doing can ultimately be separated is another question. Theoretically, it is one thing to know cer-

tain facts and another to be trained in handling and changing them. Hence, we have from the start three large groups of educational aims. The child must acquire knowledge, he must be trained in activity, and he must be filled with enthusiasm. The first two make the child able for his task, the last makes him willing.

Every one of these functions can refer to various aspects of the world, as the experience of every human being has a threefold character. We know the things, we know our fellow men, and we know ourselves. This threefold division must be fundamental for the experience of the child, too. At whatever level the pupil may arrive, everywhere he finds a world of things around him, which means nature to him; a world of men, which mean society, and, third, he finds himself. Each of these three worlds of experience will become richer and richer. The things with which the infant deals are near his hand, and they grow and grow until, in the experience of the adult, they have been enlarged into the world of the astronomical universe. The fellow beings whom the child meets become imbedded into a larger and larger society until, in the experience of the adult, they have grown into the whole of mankind. Finally, the experiences which refer to the self are, in the infant mind, vague sensations, and they develop until they represent the whole richness of a moral personality. But on every level this threefold character of outer world, fellow world, and inner world comes back again. Whenever the child gains knowledge, or trains his activity, or feels moved by desires, it may refer to any of these three worlds. Thus, we come, first, to the knowledge of the outer world, fellow world, and inner world; secondly, to the activity in all three fields, and, finally, to the ideal demands for the things and the fellow men and the self. Yet every one of

these groups suggests further subdivision. For instance, we can separate the material knowledge and the formal knowledge. Above all, when we come to our third large class, we shall have to subdivide the various emotional demands—the ethical, and the logical, and the æsthetic, and so on. Of course, it cannot be our task to carry out such a system of educational aims in its detailed ramifications.

What parts of the school curriculum satisfy these various groups of needs? To be sure, we must not forget that the school work stands in no contrast to the foregoing home influence. It may be claimed that every one of these achievements is approached in a slight degree before the child enters the schoolroom, and in some directions the school simply has to continue what the nursery has prepared. In other directions the school itself can be only a beginning; the later life must bring the fulfillment, if fulfillment is ever to come at all.

We said that the first condition for the ability to realize ideal ends is knowledge of the world. We separate the knowledge of things from the knowledge of fellow men and the knowledge of the self; and in each case we also want to separate the material knowledge from the formal. The material knowledge of things begins with the child's acquaintance with the surrounding objects and leads toward the fullest possible knowledge of the physical universe. The study of animals and plants, of the physical structure of the earth, of the human organism, of the physical and chemical processes, thus enlarges without limit the acquaintance with that material world in which and on which man must realize his aims. Other factors must determine the necessary limitation, but by principle the whole field of botany, zoölogy, anthropology, geography and mineralogy,

of astronomy, of physics and chemistry would ideally fulfill this need for the material knowledge of things.

At its side stands the formal knowledge. It does not give the child acquaintance with whole objects and processes, but examines certain formal relations. The most important is the number relation, which the child approaches in counting, and which is developed further in arithmetic. Another aspect is the formal relation which leads to geometry. Again, another important formal aspect is offered in the variety of colors, which leads to a special study of the outer things. On a higher level we still move entirely in this formal analysis of the world, if we approach mathematical physics. The description of the physical processes deals with content of experience, but the explanation of the physical relations through mathematics is the highest development of the formal understanding of the universe.

Our second department of knowledge is that of the fellow man. Here he is not in question as a physical body. As such we find him in the anthropological and physiological study of things. No, the study of man as fellow-being refers to him, not as an object, but as a subject; his will and his ideas must be understood. And surely no one who is to serve in the upbuilding of a world of values can do his best in it if he does not understand his fellow men and the world of civilization, which they have created as expression of their will. The knowledge of man's culture is, therefore, as indispensable as the knowledge of nature. Again, we separate the content and the formal aspect. The content of this world of civilization is represented by the human history. The political history stands out as an important part, but, after all, only as a part. The economic and cultural history, the history of science and of art, and lit-

erature, and religion must supplement the story of the growth and the struggles of the nations. Only through such historical perspective, whether it goes back one generation, to the Civil War of America, or a hundred generations to the wars of Assyria, do we understand in its fullest meaning the life which surrounds us, and only if we understand it can we serve it and fill it with our ideals.

Man's life, too, offers its formal aspect. Most fundamental is the mutual relation of men by language. The child must be able to read the printed and the written word and to understand its meaning. This linguistic relation is as important for the formal knowledge of man as the mathematical relation is for the formal knowledge of things. But, just as the number aspect was not the only formal side of things, we may discriminate in the fellow-world, too, many other systematic relations. Men stand in social and political, in legal and economic and moral relations, and only he who understands this system of mutual connections understands the world in which he moves. Here, between the formal and the material aspect of men, we have a relation similar to that in the world of things. There we saw that the physical process can be considered from its material side in descriptive physics and from its formal side in mathematical physics. In like manner, the political, and legal, and economic, and social life which surrounds us can be considered in both ways, either with reference to its content or with reference to its form. In the one case we understand it historically, in the other systematically. For instance, in one case we try to comprehend the constitution of our country as a result of the historical development, in the other we try to understand it by accepting it as a given existing system, which we analyze in its legal aspect.

Our third field of knowledge is the self. If here again we discriminate, we find, first, the knowledge of ourself as a definite group of experiences, characterized primarily by our particular place in the world; and on the formal side the knowledge of our own powers, and talents, and gifts, and limitations. No knowledge of nature and culture can be substituted for this necessary knowledge of our own content and of our own power. The child must know where he stands in this group and in this community, must know what experiences he personally has gained and what lies before him, and he must know as well what he is able to perform and with what special interests and gifts nature has provided him. The school has no right to neglect this aspect. The school should furnish the child with an objective understanding of his own position, and everything must be kept in a definite relation to his own place and to his own neighborhood, not only in order to connect his studies with what he knows best, but, still more, to make him comprehend what he is himself. Throughout the school life the child must find himself more and more and recognize his own personality, if he is to become prepared to do his best in the upbuilding of an ideal world.

We turn to the second large department of school work, which is no less necessary for making the child able to perform his life task. He must become trained in the performing of the task. He must learn the particular activities. Each learning of activity means training. Only we must never forget that our activity is not always an external one. We are active not only if we move our arms and legs and change the outer world, but also if we direct our attention or work with our inner will in order to change ideas or to overcome inner resistance. This internal doing certainly belongs in the same sphere with external doing.

It demands the same practice and training, and is sharply to be separated from any mere acquisition of knowledge. It would lead too far to enter into complex subdivisions, which a subtle classification of activity would demand. For our bird's-eye view, it may be sufficient again to separate only those three large groups of activities relating to things, relating to fellow men, and relating to the self.

Indeed, the child must learn to act on the things of the outer world; but we must insist that a searching activity has just as much importance as a changing activity. By searching we mean those efforts by which the existing things are discovered and explored, while they themselves remain unchanged. The changing activities, on the other hand, produce real alterations in the objects themselves. To the first group belongs all training in observation and recording, in experimenting and analyzing—yes, we might say all training in solid, thorough methods of study. Then this group also includes all measuring or careful drawing; it includes, with reference to the past, the training in careful remembering and reproduction of the outer impressions; with reference to the future, all training in exact expectation and determination. Hence, we must place here the training in mathematical calculation. Whether we observe, or record, or measure, or calculate, we are always active, in order to find out what exists, or what has existed, or what will exist, and what in itself is independent of our doing. On the other hand, we have those numberless activities which really change the outer world. The sewing and cooking and weaving find their place here, as well as the manual training work of the boy, up to complex technical work and industrial training. Certain aspects of physical and chemical and biological experiment-

ing, drawing and modeling must be included in the same class.

Our next group would then naturally be the training in activities which refer to the fellow men. The art of speaking and writing stands in the foreground. But from its elementary aspects, with the demands for spelling and grammar, it may lead up to composition, and rhetoric, and debating, and all other productive activities by which man influences man. The same group contains the training in manners and social behavior, in economic transactions and in civic life. All these have their special technic, which must be learned, and the school must have its share in the training for social behavior, for good manners and politeness and respect, as well as for spelling and writing. All these activities toward other men are of a common type: they try to influence, and in this way to change the fellow men, to alter their attitudes toward the world or toward the actor. In a way they correspond to those activities in which the things are changed. But we separated from them those other activities in which the things were explored. Correspondingly, we can find those activities in which the other men are not changed, but understood. In the center stands the act of reading. We read to become acquainted with the experiences of fellow men and, ultimately, of all mankind.

The last group of activities again refers to the child's own self. The child must learn to change himself. Gymnastics, with its development of physical energy and skill and strength, is one aspect, but still more important is the inner gymnastics of will, and feeling, and attention, and thought. The child must learn how to control his own emotions, how to inhibit his own ideas, how to turn his interests, and how to awake his associated ideas. Proficiency

in any one of these arts will prepare him better for his life tasks, and in every one of them training is needed. Finally, the child must also learn to find out what is in his own mind, to draw the conclusions of his thoughts, and to consider all the motives which his knowledge and experience has deposited in his mind. With such changing and searching activity toward outer world, fellow men, and inner world, the work which is to make the child able for his ideal achievement is completed. But there still remains before us that last great part of the school work which makes the child not only able, but at the same time willing to do his share. In the school curriculum all which serves to make the child able to do his later work may be classed together as the instruction; all which makes the child willing for the work may be grouped under the term inspiration. Thus, the instruction comprises the acquisition of knowledge, as well as the training of activity. Now we must turn to the means of inspiration.

CHAPTER XXIV

SCHOOL INSPIRATION

We should always keep in mind the end of all school education. The pupil is not only to become able, but also to become willing, to fulfill the ideal aims of life. There is no need that the school make him willing to aim toward selfish ends. The desire for pleasure and the dislike of pain are always with him and are always working as motives in his daily life. But the ideal aims which, as such, do not appeal to mere feelings of pleasure and pain and which do not promise selfish gratification cannot become impulses and motives for the child's effort, if an enthusiasm and a belief in them and a willingness to work for them are not impressed on the young soul. They may be coupled with pleasure, but their real meaning lies in a satisfaction which is independent of personal desires, inasmuch as they are valuable and must be valuable for every one to whom life is more than a dream and a chaos. They give meaning and significance to the world, and we submit to them because they are eternally valuable. But the child must learn to appreciate them and must be inspired to find his true satisfaction in the approach toward their realization. We may emphasize the chief groups, and in every group may separate the reference to the things, to men, and to the self. We may be short, as we had approached

this field once before when we discussed in our ethical part the general aims of life.

We may begin with the purely intellectual ideal of consistency or connectedness. It is the connectedness of the experiences of the outer world which gives us natural science, the connectedness of the world of human beings which gives us history, and the connectedness of the thoughts in ourselves which gives us the life of reason. If all the facts concerning the outer world are connected in a scientific system of causes and effects, if all the human intentions are interrelated in the world's history of mankind, and if all the thoughts are logically connected by the laws of consistency, nothing in our possible experience remains isolated and accidental. Then a world is reached which must have validity for every thinking person. What a difference between the mere seeking of information for personal advantage and the search for ideal truth in the service of ideal consistency! To seek information which we can apply and which helps us is a longing for which no special enthusiasm has to be taught, but to strive for truth in order to get a connected view of the world and mankind and inner life demands a slow development of a desire which is dependent upon school and education. However important the acquisition of knowledge in the school is, the enthusiasm for knowledge is in itself not given with it; and yet it is the more important gift of the schoolroom.

We point to an entirely different side if we emphasize the desire for harmony. In the world of things we may secure harmony by seeking and conserving and respecting the beauty of nature wherever it offers itself, or by arranging our surrounding, our town, our home, our room, our desk, in such a way that every part agrees with every

other, that forms, and material, and colors, and purpose, and meaning of the things are fitting for each other. No child needs to learn that sweet berries taste agreeably and, therefore, that they are to be liked. But the love for the harmony of nature and for the ideal fitness of things must be acquired by education. It is not simply a taste for a richer pleasure. What is to be learned is an enthusiasm for something which is valuable in itself. The child must learn to believe in the absolute value of the beautiful. The same demand repeats itself with reference to the fellow beings. Their harmony is friendship and love and peace, and again all that is needed is submissive belief in the eternal value. The child must learn enthusiasm for the ideal of the harmony of men. Discord and struggle may stimulate and attract his mind in its selfish seeking for pleasure. It needs an impersonal devotion to human unity in order to subordinate the life to the ideal accord of souls. Finally, the same holds true for the inner world. We saw in our ethical discussion that such a complete inner harmony of all our striving is that which we ought to call true happiness. Happiness, therefore, stands far superior to the mere pleasure as gratification of selfish desire. To seek pleasure no one needs especial inspiration, but to seek true happiness is the ideal goal for which enthusiasm must be inspired.

In closest relation to this ideal of harmony in the outer world, in the human beings, and in the self there evidently stands the ideal of perfection which finds its complete realization in art. Because of its endless connections, reality can never be completely perfect in itself; whatever we grasp in real life awakes demands for something else. The work of art alone can detach a given manifold from the remainder of the world, can by a frame separate the land-

scape on the canvas from everything which lies outside, can isolate the persons on the stage or in the novel so absolutely that no tie links them with the rest of mankind. This complete perfection, in which every demand in the work of art is satisfied by its own means, is not a mere pleasant entertainment, not an enjoyment for one person or another, but a value to which the mind ought to be raised. The belief in the absolute dignity of such true art must be instilled by education. As far as this ideal is realized in the world of things, we have the fine arts; as far as mankind and man's will is the material, we have literature; as far as the inner life comes to such perfect expression, we have lyrics and music. No education can live up to its true ends unless it helps throughout to stimulate the enthusiasm for artistic beauty. Whether poems or dramas are read, whether the masterpieces of foreign literature are brought near to the pupil, whether artistic drawing or singing are studied or the glory of historical art is proclaimed, the enthusiasm for the realm of beautiful art must be developed, together with the belief in truth and harmony.

We turn in an entirely new direction if we recognize the ideal nature of progress. We rejected beforehand the illusion that progress in itself is bound up with individual pleasure. In every field standstill and regress may secure just as much pleasure for the individual. The low life, the cheap life, the vulgar life, the barbaric life is no less full of pleasure and does not bring more pain. The gratification of our selfish desires does not demand progress; and yet the educated soul longs for the realization of no ideal with deeper enthusiasm and stronger willingness to make sacrifices. We demand progress because it is absolutely valuable that the energies of this world be developed to

higher and higher activity and that every germ come to harvest.

In the sphere of the external things the ideal of progress is realized by technical development. Work which opens the land and wins the treasures of the globe and distributes them in the channels of commerce, which plants the fields and transforms by manufacture the physical and chemical materials leads nature to higher and higher levels. In the sphere of fellow men the progress means social and political reform, means the awaking of new economic needs, means richer and richer organization of mankind. Finally, with reference to the self, the ideal of progress is realized in higher and higher development of the energies of mind and body, in the preparation for the fullest possible service for which the talents of man have fitted him, in the unyielding production and creation of the best and highest work which our efforts can secure. Rewards and advantages may stimulate the selfish instincts which help to spur the lazy will; and yet the goal will never be reached unless a certain enthusiasm and belief in the value of progress and self-development has become the fundamental motive. A great man has said that enthusiasm is the best fruit which we gain from the study of history, but surely the pupil's study of history is only one of the many factors which must coöperate in filling the young mind with enthusiasm for progress, and reform, and industrial growth, and self-development, and the highest possible service to mankind.

The belief in progress demands as its counterpart the belief in conservation and loyalty. A world in which everything flows by would be no world. If we are to realize that which has ideal value, we must aim toward the conservation of that which is valuable in itself. It ought to perse-

vere and to maintain itself. In the world of nature, it is the valuable organic world, is life itself, which demands this conservation. The belief in the absolute value of life involves the care for health and the hygienic effort for the organism of the social body. If we turn to the social world, this self-conservation and loyalty mean law. If we apply it to the self, it is morality. In our ethical discussion we have sufficiently convinced ourselves that morality is ultimately self-consistency of the will; we are moral if we act in accordance with our own deepest will. Wherever disease destroys life, wherever lawlessness destroys the legal self-conservation, wherever immorality destroys the ethical will, there an ideal value is annihilated. The child must be educated toward the enthusiastic belief in the absolute value of this ideal loyalty.

Finally, we speak of the highest, all-embracing value if we turn to the demand for unity. Religion and philosophy realize for the human soul this highest desire, in which truth, and happiness, and morality, and progress, and beauty are blending and in which all contradictions and struggles are removed. As far as the world of things is concerned, the religion of the Church understands the universe as God's creation, and the philosopher understands it as the realization of an absolute spirit. As far as mankind is concerned, religion seeks the expansion of the Church to imbed human life in religious beliefs, and philosophy seeks the community of ideals in every human being. Finally, as far as the inner life is concerned, religion seeks salvation, and philosophy an idealistic view of reality. Both work together harmoniously, but both presuppose that devoted belief and enthusiasm which has nothing to do with selfish hopes.

No public school of this country is called to teach re-

ligion, and hardly any school reaches the level at which philosophy could be taught with profit. And yet there is no school and no teacher who can afford to teach without implanting in the young souls a religious and philosophical longing. A certain attitude toward the totality of life and world is necessary for everyone. However narrow and humble a man's life may be, even his routine work must be controlled by a certain belief and general view of the world. Otherwise, his duties would have no meaning for him, his own fate would appear absurd; he would not rely on the laws of nature, and would not know whether the sun would shine again on the morrow. To develop such a really unified view of the world, or rather a striving for such a unified view, should be the silent, but most solemn aim of the school work. A spirit of reverence and a spirit of idealism must pervade every schoolroom and must fill the pupil's mind with an enthusiasm for a life of meaning and significance in which the day's work is imbedded into the eternal.

Thus, the ideals of consistency and harmony, of perfection and progress, of loyalty and unity, must be instilled into the pupil's mind, if he is to be made willing to fulfill his life's work and to make use of his knowledge and of his training. However rich the instruction may be, this work of inspiration gives character and direction to it. There is no knowledge and no training which may not be misused, and no one can be called truly educated simply because he has acquired the ability to perform his task. True education demands the devoted belief in the value of the task and the enthusiastic willingness to subordinate the personal gratification. Not every one can be inspired with equal strength by every one of the human ideals. There are individual differences as well as national ones. There is no

doubt, for instance, that the ideal of perfection and of consistency does not take hold of the average American man as deeply as the ideal of progress and morality and religion. In the same social group one man may be carried away by the enthusiasm for social reform, another with that for industrial development, one with delight in literature, and another with devotion to natural sciences; one may be enthusiastic over harmony among men, another over the relation of men and God; one may live in the joy of his faithful labor, another in his family duties; and yet every one of the human ideals ought to exert some power over every educated being. However much we may be absorbed by our labor, by efforts for service and work and progress, we can never afford to be entirely indifferent to the harmony or disharmony of the life about us, to the beauty or ugliness of our surroundings, or to the connectedness or distortion of our thought.

The means by which the school may serve such a purpose are abundant, and yet characteristically different from those which aim toward the imparting of knowledge. Enthusiasm cannot be taught by hammering it into the mind. Mere memory exercises will never be the source of inspiration. It may be that the best of this work has to be accomplished indirectly, almost by suggestion. The teacher who treats knowledge as if it were a mere matter of information, helpful toward getting better bread and butter, and who trifles with the respect for truth as such, destroys the real core of his instruction. The enthusiasm of the teacher for thorough knowledge, or for the beauty of a poem, or for the unselfishness of a moral hero may be an inexhaustible well for the best which the pupil can learn in his classroom. We insisted that there is no need of instruction in religion in order to give to the whole instruc-

tion religious significance. In the same way, it may not be necessary to teach civics in order to fill the young mind with belief in civic duty and enthusiasm for civic progress and righteousness. There may not even be any need of special instruction in art and beauty, if purity and beauty of speech, if order and harmoniousness of the schoolroom constantly touch the receptive mind. But the direct means of education must not on this account be neglected. The ethical values of social and historical life, the æsthetic values of literature and art, the logical values of consistent thinking and natural laws must be consciously impressed on the pupils in order to bend their minds toward enthusiastic conviction.

CHAPTER XXV

THE SCHOOL CURRICULUM

We have tried to sketch and to develop consistently from one principle the whole manifoldness of educational efforts. No possible task of education is left undone, if the pupil has achieved complete knowledge of outer world, fellow man, and self, has been perfectly trained to act with reference to them, and has been inspired with enthusiasm to realize the human ideals in outer world, fellow world, and inner world. But to say this, means, of course, to confess that no perfect education is possible. Even under the most satisfactory conditions, not one of these aims can be reached, even, in any single field. Can we ever hope to impart to the pupil complete knowledge of nature, or mathematics, or languages? There is no scholar in the world whose knowledge is perfect in the smallest field; no thinker knows all the consequences of his thought, and, in the same way, no sane man fancies that any activity can be trained to perfection in the school. No power of attention and observation can reach a point beyond which progress would be impossible, no master of language can write a style which could not be surpassed, no industrial ability is perfect; finally, the striving for ideal ends cannot itself be more than an ideal for which the school is striving, cannot ever be completely reached.

Hence, it would be absurd to imagine that a school cur-

riculum could ever be planned which would offer everything which such a theoretical map of possible educational work contains. If the school life should go on until threescore years and ten were reached, it could remain only an effort to approach the ideal, and no human mind could adjust itself to a perfect system of education. Moreover, nothing would be gained by such completeness, inasmuch as the opportunities for the realization of ideals for every human being are limited by the particular conditions under which he lives. Of our knowledge, of our inspiration, and of our training alike, it remains true that only a small part of the possible material and means are of central importance, and that from this center everything shades off to indifferent regions in which little can be serviceable for the individual task. How few of us would be able to serve any valuable end by mastering the Persian language or Chinese history! Selection is the fundamental principle which must control the making of a school plan. Furthermore, we do not consider as the task of the school the whole of the individual preparation, but only that part which lies below a certain point of vocational training or of higher studies. The college and the university and the technical institutions are not schools in the ordinary sense of the word. Accordingly, the selection must eliminate much from the school that should be left to later periods. Thus, we stand before the question: From what point of view should the elementary and the high school select for their curriculum that which is most desirable in the abundance of possible offerings?

The most essential principle for this sifting process is a negative one: the limitations of the pupil's mind. This at once leads us back to the midst of psychology. These psychological limitations are twofold: they refer to the

quantity and to the quality. The quantity of work which any man may perform is narrowly limited, but the possibilities of the child are certainly still smaller. No discipline and no outer stimulus can bring a change beyond certain limits. To be sure, the well-educated, carefully informed, and trained boy and girl can do incomparably more than the neglected child. The powers of observation and of attention, of memory and of interest can be stimulated to a degree which allows a rapid increase in the amount of work done in a given time. Yet nature provides the mind with well-working safety valves. As soon as a certain limit is passed, attention fails, the will succumbs, and every additional effort is fruitless. Moreover, every overburdening interferes with the value of the work. If more is demanded than the child's mind can fulfill, the result is carelessness and superficiality. Then the poor result discourages the pupil and the discouragement inhibits all mental powers; thus a vicious circle is established. Surely, a wise limitation of the quantity of work is fundamental for the success of the school.

In another way this reduction of the amount of work is determined by the period of the available time. The psychological factor must yield to the sociological ones there. The child's mind might well stand an enlargement of the curriculum to extend over more years. The mental constitution does not offer any reason why every child should not go on through the high school, but social conditions make it impossible. The school must be adjusted to the situation of those families who cannot afford to support the child beyond the graded school, and who need the earning power of boy or girl when the elementary school course has been completed. Some of the years in which the mind is most open to new learning and training are

thus lost for educational purposes to the overwhelming majority of the children of the nation. The school has to accept these conditions and to make the best of them.

But this limitation of time for social reasons must act as a stimulus on the school to plan its curriculum and the whole school administration with the aim of the strictest economy of time, avoiding all waste, and thus securing the greatest possible amount of educational work in the few years which are at the disposal of the school influence. Nobody can doubt that in this respect the traditions of a careless past still hamper too much even the best efforts of our modern institutions. The point at which our high schools begin their work might easily be reached by the average child two years earlier than, on the whole, it is reached to-day. Any careful comparison of the American school achievements with those of the European Continent shows convincingly that the end of the high school career which is reached by an average boy or girl of eighteen in this country can easily be reached by the school methods abroad at fifteen or sixteen years.

No one can overlook that certain differences between those European and American schools result from social and political conditions which cannot and ought not to be changed. It lies in the structure of European society that those who probably will go to higher schools are brought together from the start in special elementary schools which work more directly toward the higher aim. The democratic spirit of this country cannot admit such differentiation in the elementary grades of the public schools, and that necessarily introduces a retarding element into the studies of the best pupils, while it has the noble advantage of giving equal chances to every boy and girl of the country. Yet the slow progress in the private

schools indicates that the fundamental reason lies, after all, in the methods, in the habits of work, in the lack of discipline, in the unwillingness to force concentrated attention, in the unequal preparation of the teachers, and most of all, perhaps, in the ill-adjusted plan of instruction. Time is wasted by dreary repetitions, and too often by poor organization, by short school days and short school years, and, alas! by the almost immoral lack of support which the American school frequently finds in the American home.

As far as the quality of the material is determined by the limitations of the pupil's mind, we must think, in the first place, of the fact that nothing can be fruitful in education which cannot be comprehended. The child is not expected to comprehend the truth which is offered in all its consequences or the thing presented in all its connections, but some kind of productive, apperceptional comprehension is essential. That presupposes, on the one side, that nothing is taken up which has not been prepared for by the foregoing instruction, and, on the other side, it demands that nothing shall be introduced which surpasses the capacities of the mind at the given period of development. When we studied the psychological functions, we recognized how the mind progresses through its inner conditions of growth. A most careful adjustment of the material to the immature powers of apperception is necessary. It demands more tact on the part of the teachers and the writers of school books than is often found. It involves an energetic sifting of the educational content. The teacher too easily forgets that the picture which he shows to the pupil may appear to the child as something entirely different from what he himself sees in it. Many a sentence and verse learned by heart may be spoken by the lips of the

child, and yet remain beyond his comprehension. Both his life experiences and his mental capacities are insufficient for the mastery of the content.

We have put the negative factor of the child's mental limitations into the foreground. We must turn to the positive conditions, which ought to determine the plan of the curriculum. Which of all those possible studies within the limits of the pupil's capacity ought to be selected in the service of knowledge, training, and inspiration? First, we emphasize that on which we have already touched: the relation to the practical life work of the individual. No vocational preparation is in question. The future lawyer in the elementary school ought not to go through a training different from the future physician or minister. The mill laborer or the miner in the lower grades does not need knowledge different from that of the future farmer. How far individual liking and disposition may influence the school curriculum from the start we may discuss later, but certainly the demands of the future calling ought not to shape the early school activity. The essentials of our life and its demands are common to all of us, and it is more important that we all become prepared for the community of our national civilization by having a common stock of knowledge and training and enthusiasm than that the differences of our vocational life should shade our elementary studies.

Yet, in certain respects, the great differences of later development are so evident that an early adjustment seems natural. It seems needless that the boys learn sewing and cooking or the girls carpentry. Again, it certainly is important that differences be acknowledged for those who have to close their education at the end of the grammar school and those who can carry it on through the high

school, and, correspondingly, between those who enter from the high school into vocational life and those who pass on into the years of collegiate education. Yet all these differences of the later life work are slight and almost insignificant, compared with those demands of the life task which are common to all children of our country and our generation. If we consider these demands our idealistic theory of education may almost speak in the usual language of the utilitarian educational theory. Indeed, that is the ordinary view which we hear expressed on the streets, that the children ought not to be burdened with anything which will not prove useful in their later activities. The American elementary school of the twentieth century must not train in the speaking of Sanscrit, nor teach the detailed history of Russia, nor the subtler geography of Africa, not because it is harder to learn Sanscrit than French, Russian history than English, African geography than American, but because such studies taken from remote regions would be useless, or, as we should prefer to say, would not be serviceable for the realization of ideals in the life of American citizens.

There may still remain much disagreement as to what subject matter ought to be favored under this point of view of usefulness and what may be neglected in the American school, not because it is bad or in itself not important, but because it is less related to the life of the American school child. The problem is the more complex for us, as we have seen that certainly the acquisition of knowledge and the training in activity are not the only things which are "useful." Everything which stimulates the ideal enthusiasm, if it is a kind of enthusiasm and inspiration which can have a chance for later expression under our life conditions, is of no less practical usefulness. Of course, there has

never been any disagreement about the proposition that mastery of the mother tongue, that reading and writing, spelling and grammar and composition, that arithmetic and some nature study, some history and geography, some literature and art, some manual training and physical exercises are indispensable in a modern elementary school. Even physiology and hygiene seem to have won their permanent place. The list of those things which no one would omit becomes still longer if we extend our view over the high school course, with its foreign modern languages and its classical languages, with its classical history and its mathematics.

The disagreement begins rather when the question arises how much in every case may be admitted into the compass of the school—how much of nature study, of history, of geography, and, moreover, with what degree of thoroughness they are to be treated. The development of the last two or three decades has shown an evident tendency to seek progress in an increase of the number of topics. But there is no lack of indications which suggest that a turn in the road is near. Instead of expansion, the best educational leaders begin to work toward concentration. They see that a few thoroughly treated subjects are, after all, more valuable than a large number of topics superficially touched. They forego the light and little useful acquaintance with many scattered fields and prefer the solid training which results from earnest devotion to a few fundamental departments. Yet, in the best case, there will have to be a compromise. Any theoretical ideal solution is impossible. It must remain a practical adjustment which is determined by the abundance of needs of the individual for his fullest life work and the narrowness of the available time. The chief hope of the educational reformer,

after all, must lie in the improvement of the methods of teaching, in the seriousness of the support of the teacher by the community, and in the better preparation of the teacher. Without extending the time, the work may become more thorough and yet cover the whole manifoldness of subjects which are usual to-day.

A mere enumeration of desirable subject matter would be insufficient for constructing and building up the plan of the school curriculum. Still other factors must determine the structure of the work. In the first place, we must aim toward economy of studies. So far we have considered the negative influence of the limitations of the mind and the positive influence of the demand for usefulness and adjustment to the personal need for later life work. We now demand an economy of studies by which the maximum of desirable studies is brought to the child with a minimum of material. We must strive toward a correlation of studies by which each part of the work serves the largest possible manifoldness of purposes. The inquiry into the usefulness of the topics is essentially a sociological problem, but this consideration of the mutual relation of studies and their economy is primarily a psychological one, just as is the question of the limitation of studies by the limitation of the child's mind.

If we consider the abundance of desirable ends of instruction through knowledge and training and inspiration with reference to outer world, fellow men, and self, material studies and formal studies, we must be sure that only a most careful interrelation of work can do justice to the whole of it. But such mutual relations offer themselves quite naturally from the start. For instance, the child learns the language, speaking and writing, in order to be trained in this necessary activity for intercourse with his

fellow men. But this reading activity is, very naturally, a means to become acquainted with literature, and thus to receive that inspiration and enthusiasm for literary art which belongs to an entirely different group of school interests. At the same time those sentences which he reads contain material which may be important as information. They may give knowledge regarding history, or geography, or nature study, or social facts. In short, the study of reading may serve in the same lesson the training in language, the extension of knowledge, and the inspiration for beauty. Any nature study may impart scientific information, may at the same time train the power of attention, and of description, and of observation, and, finally, may in the same act fill the mind with enthusiasm for scientific truth and for the order of the universe.

Our psychological survey has brought us nearer to the insight into a correlation which is still more fundamental. The analysis of the school aims shows to us that knowledge must be achieved and that activity must be trained. Psychology has taught us that the one can never go on without the other. We have recognized that it is a mistake to deal with the sensory functions as if they were really cut off from the motor processes. We recognized the unity of that brain arc which leads from impression to expression. We saw that we apperceive only that toward which we are responding, and that every action of ours works backward on our ideas. We saw that every judgment, with its affirmation or negation, means the opening or closing of channels of motor discharge, and that the mutual suppression of our actions is at the bottom of the mutual inhibition of our ideas. The whole correlation of studies must be based on these principles. There is no safer acquiring of knowledge than the acquiring through self-activity. We

learn the words by speaking them, the number relations by using them. Our attitudes and actions must be trained in order to give stability to our thoughts. Our active attention must be developed in order to discriminate our impressions. We must learn to imitate by inner and outer action in order to open our mind to the world which comes to our senses. We must open the paths of discharge in order to make the ideas vivid. We must learn to suppress our actions in order to regulate the flow of thought. In manual training the boy may learn clearness of ideas, in skillful turning of the attention he may develop the resources of his knowledge, in training accuracy of his reading and writing and calculation, he may train the correctness of his intellect.

But we may go further. Besides knowledge and training we recognized that third large group of school aims, enthusiasm and inspiration. We can now say that just as knowledge and activity belong inseparably together in the human mind, psychological ties connect activity and inspiration no less. It is that intimate psychological relation between will and emotion which makes it necessary that every new enthusiasm shall give strength and impulse to the activity and really make the training profitable. No learning and no training of the human mind counts, if it does not find an emotional willingness. The richer the inspiration, the deeper the self-development. Accordingly the school should secure a curriculum in which the formal training and the formal knowledge are acquired as far as possible on important subject matter and where enthusiasm and inspiration, too, are gained as far as possible with material which is in itself valuable as source of useful information and as opportunity for training. Intellect, emotion, and will must, therefore, be respected in their in-

terrelation, if a real economy of studies is to be reached. Every new advance of modern psychology certainly emphasizes this intimate interrelation.

We have spoken of the correlation of studies. It is no less important to emphasize the harmony of the mental functions which are to be strengthened by the curriculum. No school ought to train one side of mental life at the expense of the others. We saw that training of mental activity must be acknowledged as a function of the school certainly equivalent to the mere acquisition of knowledge and the development of inspiration. Moreover, our psychological study showed clearly to us that every mental function can really be developed. Apperception and observation, memory and imagination, attention and interest, imitation and reasoning, feeling and emotion, effort and will, in fact, every function can be rapidly strengthened through systematic training and can degenerate through neglect. One side of mental life must not be crippled in the interest of others, as long as general education is in question. If at a much higher level scholarly research trains functions of intellect at the expense of the æsthetic emotion or the study of music reënforces æsthetic faculties with accompanying neglect of formal reasoning, we have left the problems of the school behind us. General education appeals to the whole mind and seeks in the interest of educational economy to secure the largest possible variety of mental training with the smallest possible amount of material.

It cannot be denied that to a certain degree the principle of the economy of studies and the principle of the completeness of mental development stand in a kind of antagonism. The first principle would demand that knowledge and training should be acquired always on studies for which there is liking and enthusiasm. The second must

lead us to the conviction that the school cannot develop all the important functions of the mind, unless the pupil is also trained in the mastery of work which does not appeal to his liking and which may, on the contrary, appear to him as drudgery rather than as a source of inspiration. A study which is throughout emotionally welcome and naturally interesting may indeed be serviceable for the quick acquisition of a large amount of material but it neglects the development of that mental function which is most essential for a life of high aim, the voluntary attention. There is no doubt that through the tendency of our time to yield to this demand for interesting instruction, we already feel the dangerous results of the crippling of the voluntary attention. The superficiality which makes so much of the work of our day inefficient has its origin here.

The school which works for thoroughness, and that means for the training of an attention devoted to that which does not appeal to immediate interest, serves the highest interests of the future. Thoroughness does not mean mastery in the sense of covering every possible combination, but it does mean that whatever is done must be done as well as the pupil possibly can do it. Thoroughness does not linger over every possible detail; it may very well accompany a skill in eliminating the unimportant, but nothing ought to be omitted simply because it does not appeal to the involuntary attention. If this power of controlling and forcing attention is to be trained at all, the school must insist on material which may be important and valuable, but which is not at first interesting. The child must learn that great human art of providing interest out of his own resources for that which does not appeal to the involuntary attention. The school must adjust the practical work to the two contradictory demands and ought to

avoid extremes in both directions. A rigid school which by means of discipline and appeals to moral emotions forces the attention steadily on material which is disliked would destroy most important functions of the human soul no less than the comfortable go-as-you-please school which never requests attention except for that which appeals to natural liking and interest from the start. It is a most urgent problem to find the right middle way.

We have left out of our consideration one factor which nowadays too often pushes itself into the foreground. There is a wide-spread belief that the personal inclinations and talents of the individual child ought to play an important rôle in the shaping of the curriculum. The very small amount of truth which might be acknowledged in this demand has certainly been exaggerated in recent times and threatens to become dangerous to the best interests of the community. It is primarily the counterpart of the claim that the instruction should always appeal to immediate attention. We have discussed this claim and rejected it. It must be conceded that if instruction is always to be entertaining and interesting, it must be different for the different individuals. There is no topic which may not appear uninteresting and dull to some boys or girls however fascinating to others, if we abstract from that which appeals immediately to the senses or which by its appeal to humor or curiosity may find favor with all. One boy likes physical experiments, another likes to read a poem; the latter may find physics boresome and the former does not care at all for poetry. If voluntary attention and drudgery is to be removed from the class room, the adjustment to the personal tastes seems unavoidable. But as soon as we have recognized that just this effort of attention demands training in preparation for the service of life, the

situation is entirely changed. The adult knows that there is no calling and no ideal life work in which a large part does not demand the voluntary submission of attention. The variety of personal inclinations offers the most natural opportunity for training this important power. As long as the school work is uniform for all, each one will come in contact with certain aspects of important and valuable subject-matter which is foreign to his natural tastes and which leads him on to that discipline of attention which is the most important condition for energetic, successful, happy life.

To be sure, much of this convenient demand has still other sources. The school too easily becomes influenced by methods which are correct in days before school and still more by methods which are necessary after school. In the days before school, the self-development of the child will most easily be directed by developing his higher energy out of his natural play. Such play, of course, shows all the traits of the little personality and while external stimulations for play which grown-up people bring to the child are mostly conventional, traditional, and uniform, the child is welcome to select his play and the means of it in accordance with his particular nature. The kindergarten, on the whole, will still follow the maxim that the child may be left to his immediate attention most of the time, although even there wise management will begin serious training of voluntary attention. But if to a certain degree the merrier method is permissible, these kindergarten schemes certainly should not overrun the school.

Our present tendencies, however, indicate that the chief influence comes from above. It is the university which has shaped the college, and the college has influenced at first the high school and slowly even the primary

school. The university with its professional institutions must offer entirely different work to different men and women. The physician, the teacher, the lawyer, the minister, the engineer, the banker, demand widely varied preparation for their callings. There are not a few who are convinced that this professional work ought to start after graduation from college; they think the best interest of the community suggests that even the college course should not be much influenced by this later parting of the ways. They believe that the professional activity will be the better, the broader the general education. They would prefer to see the college in this sense saved as a place for the highest cultural education. Yet with the introduction of free elective courses into the modern college, the temptation has become too great, the pressure of the professions is too strong, and the result is that a large majority of college students adjust the college work to the later vocation. The physician takes natural science in college, the lawyer government, economics, and history; and just this process has now worked downward until even the high school has become for many a place for specific preparation for the later work.

As far as that is an encroachment on the school topics which serve general broad education, it may be a doubtful gain. And yet a certain fitness cannot be denied to such a principle. The enthusiasm for serviceableness in the particular line which a boy or girl has chosen for life may give to a specialized study in the high school a certain justification. The high school pupils ought to have different preparation, if they can go on to college or if they enter into commercial life. For all these reasons it is wise that the secondary education should offer a certain choice of courses, perhaps a so-called classical course and English

course and commercial course. But this becomes unwise if the motive for choice is not the professional end which has been chosen, but the personal liking for the studies themselves. To begin the specialized training at an early educational stage may be and, to a certain degree is, a sociological necessity, but to allow the young pupil to choose his studies in accordance with mere liking and disliking is an educational wrong. These young interests are shifting and the fullest possible contact with all sides of culture will give the best opportunity to the pupil slowly to find himself and to develop permanent interests.

The haphazard method of following the impulses of liking interferes with the sound inner growth. Accidental conditions like imitation, fads, and fashions, personal preference for a teacher, if not even for a special recitation hour, elements of superficial attraction in the subject-matter and similar chance factors too often determine the choice, even at the collegiate stage. At an earlier period the chances for misleading impulses are still greater. And yet it is the principle itself which is the most objectionable feature. The element of the pupil's personal taste as a controlling factor must be subversive to the true interests of the school. It ought to be a happy time which the child passes in the schoolroom, and to which he looks back with gratitude. But the great word which is to control it is not pleasure but duty. At some time in life, everybody must learn that no one can only follow his liking. Those to whom the community gives no chance to learn this lesson in the plastic years of school will have to learn it by disappointment and dissatisfaction at a later age. He who learned in the discipline of the school the eternal truth that the fulfillment of duty is the best thing which makes life worth living will be most grateful for his curriculum.

Such a demand for uniformity of cultural school work without shallow concessions to the individual inclination in no way excludes the full play of individuality in the school life of the pupils. Even the most rigid school plan gives to everyone rich opportunity to show and to develop and to enjoy his particular gifts and talents, and each conscientious teacher will take care that every germ comes to development and growth. And again it is a different problem whether those varieties of talent and intelligence suggest the forming of special groups and classes for the pupils who move forward more rapidly than the average. Every educator knows, on the other hand, the importance of eliminating those pupils whose mental capacities stand far below the average. It is in their own interest and in the interest of the whole class that they be taught with special methods in special classes. But these are technical questions of school administration which are secondary compared with that life question of the unity of the national education.

CHAPTER XXVI

THE ELEMENTARY STUDIES

To enter into the detailed psychology of the special parts of the school curriculum would lie beyond the aims of our discussion. Moreover, it cannot be denied that a real scientific psychological study of the factors involved in the teaching of the special topics is still essentially a hope for future work. The purposive aspects of the teaching of history or physics or French have been worked out carefully, and much valuable material derived from practical experience has been brought together. But the laboratory work with its psychological experiments has hardly begun to enter this realm, and even physiological psychology confines itself to rather clumsy schemes which have not as yet been elaborated for the details of the various studies. Yet it can easily be foreseen that the new life which has come to experimental, educational psychology in the last decade and of which our psychological review has discussed not a few results, will transform many of the traditional theories. Even now a full mastery of the general psychological principles can help every teacher to make the special instruction more effective and satisfactory and to fertilize many arid regions.

The fields in which really careful experimenting has been carried out are especially those of reading and writing, to a certain degree, those of calculating, drawing, and

singing. We might add to this list manual training and gymnastics. So far the higher studies have hardly been touched, but the process which went on in general experimental psychology will repeat itself in pedagogical psychology. We saw that the psychological laboratory began with simple sensations and reactions and that a steady series of conquests led to experiments on memory, attention, emotions, and so on. The educational psychological experiment still stands at its beginning where the pedagogical elements, such as learning, imitating, attending, writing, fatigue, and so on, occupy all the energies of the laboratory. It seems still too bold an expectation to suppose that complex factors like those which determine a translation or a composition or a physical experiment or a literary appreciation should be studied by experimental methods. Yet here, too, the conquest will be made in time.

To turn with psychological interest to at least a few of the most important school studies, we may begin with speaking, reading, and writing. Of course a child who comes under the teacher's care is able to speak. He does not wait until his school days to learn it. And yet we know that in a higher sense the majority of children come to a school age without any mastery of speech and must use their school time to acquire real power in the mother tongue, if they are ever to reach at least correctness, if not perfection. The learning of speech is a continuous process from infancy to the end of adolescence and each stage has its characteristic significance, however much the rhythm may differ in which various individuals pass from one level to another. The infant begins by imitating spoken words without understanding them, then understanding follows, and imitation and apperception are combined in the beginning of real speaking about at the end

of the first year of life. But the words do not designate objective knowledge; they are expressions of feelings and wishes. It is the emotional and volitional aspect of the things which first comes to expression. Slowly this leads to objective naming and spontaneous designation of the things, a development which goes parallel to that of attention and which carries with it the beginnings of memory.

The control of the words leads further to abstract ideas which have no real logical meaning at first, but only the psychological character of a vague using of the same word for many similar things. From here the child reaches out for those words to which no immediate perceptions correspond. The imperfect mastery of the speech muscles and the lack of discrimination in the hearing of the spoken sounds for a long time leaves the language not only primitive but incorrect. Now the use of the verb and of the form of the question set in. The pronouns, the adverbs, the conjugation of the verbs are to be conquered, and finally the words take their conceptional character and with them the child grasps the logical relations themselves. At this stage we reach the organized completed sentences in which conjunctions play their rôle. It depends upon the natural intelligence of the individual what degree of development this ability of forming sentences has attained between the third and sixth year. But whatever stage may have been reached, the pronounciation is seldom perfect, the grammar is always imperfect, the vocabulary is small, the style is awkward. Reading and writing and composition will do their share to overcome the deficiencies and to train the child in a freer control.

But the school usually puts too little emphasis on the training which belongs to the speaking as such. Teachers ignore the fact that speech, the most complex of all human

actions, follows the general law that no action can be performed well on certain occasions, if it is habitually performed badly. No one learns to master speech, if he is usually the slave of slang and deformed speech. The children cannot learn good English if they are allowed to give their answers in any lesson in a slipshod way and unless practically every recitation is systematically used to train a clear, correct, grammatical expression in well-organized sentences. Throughout the years of development too many pupils speak mostly in sentences which grammatically hang in the air and use phraseology of colorless words without any distinction. Among one another they speak a slang which is one of the most evil influences on the inner growth of the American youth.

We have convinced ourselves that the organization of thought cannot be separated from the organization of action. The thoughtless, careless use of silly words which are the fashion of the hour in which our school boys and girls are accustomed to indulge means psychologically a uniform reaction in quite different situations. In decent speech a discriminating expression would be sought; in slang speech the lack of discrimination is hidden by the amusement which the mere deviation from the correct speech provides. The barbaric form becomes an attractive cover for a mental laziness which works back on the whole intellectual life. The natural consequence is a habitual lack of careful discrimination between similar conceptions and thoughts and the final result must be a lack of logical consistency and discriminating insight in the life of the community. It is needless to say that the teacher's English must by its correctness and its suitability be the constant model. We have examined the meaning of imitation and suggestion. There is no doubt that the personality of

the teacher is a center of suggestive influence throughout school life. That means that a motor setting exists in the child's brain by which the speaking of the teacher has a stronger chance to be imitated than any other spoken word which reaches the ear of the child.

In recent times psychologists have correctly emphasized that the mere imitation of the sounds which are heard is not the only mental source of the speech reactions. The child does not perceive only by the ear his own speech and the speech of others but sees their speech movements and feels the tactual and muscular sensations of his own articulation. The influence of these visual elements comes out clearly in the fact that blind children have greater difficulties in learning to speak and learn more slowly. The child reads the word from the mouth of the speaker. Those internal sensations connected with the speech movements as such have been often proposed as starting points for special physical exercises. The child is to imitate certain positions of the tongue, of the lips, of the whole mouth cavity, and certain ways of breathing in order to produce the correct pronunciation. All this connects itself most readily with the learning to read.

The very elaborate work which the psychological laboratory has in recent years devoted to the study of reading referred only partly to the learning and to the progress of the child. Its chief aim was rather the analysis of those processes which enter into the normal reading of the adult; and yet these results were indirectly of educational value, as a clear insight into the mechanism of reading is evidently the safest preparation for the solving of the pedagogical problems. Of course our purpose is that the child shall learn to read as an adult reads. Only if we know exactly of what elements this final process is constituted,

can we decide what way toward the goal is the shortest. And we should not forget that the shortest way is not always the safest and that to learn the art of reading quickly is not in every respect the best method. Here the experiment can easily go into the minutest details and the popular ideas have had to be completely revised in many respects.

To indicate the subtlety of the method, we may point to the movements of the eyes during reading. The usual idea was that the eyes pass in a continuous and steady movement from one end of the line to the other. The experimental psychologist attaches a minute lever to the eyeball and automatically registers on the revolving drum of the kymograph the movements which the eyeball really performs during the act of reading. Or by another method he takes kinematographic pictures of the reading eye, after attaching to the eyeball a luminous spot which can be exactly followed in the series of successive photographs. Both methods show that we never in ordinary reading move the eye steadily from one end of the line to the other but that our eyes make jerking movements, jumping perhaps four or five times in one line from one resting point to another and never really moving to the ends of the line. Thus we do not really read with a moving but with a resting eye. A whole complex of words is grasped by one act. The more trained the reader, the fewer are the points in the line at which he rests. Not seldom such a point may lie between two words. This unexpected result stands in striking contrast to the method of the child who begins to read and who is really obliged to move slowly along the line from beginning to end. Just for this reason it indicates the direction which the training should take, if the ability of the trained adult is to be reached.

To mention another group of important experiments the time measurement of the recognition of words in reading has been carried out by means of the chronoscope which shows the thousandths parts of a second. Such experiments have demonstrated that, for instance, the reading of a word of three letters does not take more time than the recognition of a single letter. This evidently proves that the trained reader does not read the word by summing up the reading of the single letters. We apperceive the word as a unity. But the experiment even shows that a short sentence is also recognized as such an optical whole. Words which give no connected meaning demand a much longer time for reading than words which we apperceive as the united expression of a thought. Other experiments which move in similar directions have analyzed the condition under which trained readers may read erroneously. For instance, we offer familiar words in flashlight illumination and study how far it is possible to suggest a misreading. It is found that if a sentence is spoken beforehand which suggested a similar word, the substitution is frequently performed, especially when the letters to be exchanged are not at the beginning of the word. This demonstrates that normal reading is to no small degree dependent upon the expected ideas. This is one of the most important causes for the mistakes in the reading of the child. The smaller the training, the greater the chances that the expected idea will get control over the psycho-motor process of the reader, because the transition from the optical impression to the speech impulse is not sufficiently habitual to resist the influence of the anticipated idea. Such illustrations may be sufficient to show how the laboratory is able to approach these practical problems.

Yet it would be an exaggerated hope to believe that

pedagogical problems have found a definite solution as soon as they are brought to the exact terms of the experiment. The conflict of opinions as to desirable methods may still continue, in accordance with the emphasis which we are inclined to lay on the one or the other side. To point to the beginnings of the reading lesson, no modern psychologist will doubt that the alphabet method is untenable. The old-time learning in which each letter had its own name and the word appeared to the child as composed of the sounds by which he named the letters was antagonistic to any rapid training, but to-day this is practically obsolete. Two other methods may be equally in harmony with the psychological results. We saw that the adult reader sees the word as a whole. Hence it appears reasonable to demand that the child, too, shall learn to read by grasping the picture of the printed or written word as a whole. The reading would then begin with cat or dog and not with a "c" or a "d" and only by comparing dog with dot and cat with hat does the understanding of the elements in the word become developed. But on the other hand, the psychological experiment demonstrates that the correctness of reading is the more perfect, the more single letters really control the apperception of the whole word. Much may therefore be said in favor of a method which by a combination of simple sounds teaches the reading of the word by starting from the single letters. The complex motor impulse to pronounce the whole word in seeing the whole group of letters would in this case be slowly learned by combining the simpler impulses. This is certainly the method by which we learn most of the other complicated responses of actions, like playing the piano or handling a machine. To a certain degree, the methods can be used together.

As the form of the letters and correspondingly of the whole printed or written word is, of course, an artificial sign which in itself has no similarity to the object which it designates, psychologists nowadays often demand that the word be written or printed inside a real picture of the thing. Still others wish to reform the learning of reading by printing the letters together with pictures of the mouth cavity, presenting the different positions of tongue and lips needed for the pronunciation of the sound. In any case the psychological analysis has awakened more than ever before the consciousness of the great complexity of the reading process and no teacher any longer has the right to ignore the results. Even the pathological observations of the many cases of inability to read have become highly instructive.

In the same way the happy days of ignorance concerning the mental processes of writing are gone and experimental studies and clinical observations have thrown light on the extreme complexity of the task. To be sure, this disentangling of the partial processes quickly shows to what a high degree the mental and physiological acts in reading and in writing overlap. The psychological study of both processes therefore reënforces the conviction that they ought to be developed together. Moreover, the elaborate experiments of recent years indicate that the principle of progress in both cases is essentially the same. We said that the adult person has learned to produce the speech movement for a whole word by one motor impulse while the untrained reader must give his attention and will to practically every single letter. It may be said that this difference also controls the contrast between the writing of the beginner and of the trained writer.

It find its neatest expression through the subtle labora-

tory studies concerning the changing amount of pressure which the writing pen produces on the paper. If the paper is lying on a sensitive apparatus which registers on a revolving drum the exact distribution of pressure at every movement, we can get a curve which indicates the increase and decrease of pressure impulse for every movement. If an adult man writes a page, the typical result is that each word has one maximum pressure. It has a mountainlike appearance which indicates that the whole impulse of writing the word is a unity. With the untrained writer almost every single letter represents a little hilltop of its own. Thus the aim of the training is clear. The child must learn to bind the series of impulses together into one. That demands that the writing acts for the single letters become automatic and that the idea of the meaning of the word become able to realize the impulse for the totality of those subordinated automatic acts. This ought to be a warning against those progressive methods which start with whole written words. True progress will be the safer the more the complex innervation can rely on complete automatism for its parts. The words must be built up from the letters and the letters from the single lines and curves and loops, the crotches and links and hooks and bars and dots.

By such training the child learns to write more quickly, to write without following by special eye movements along every single line and to become more and more independent of the model which is to be copied. The result is that the handwriting gets the more individual character the more trained the writer. It would lead us too far to enter into the many problems of writing which the experimental work of recent years has analyzed. Of course the situation here, too, remains one in which the exact results are in

themselves not decisive for the choice of methods. We can find experimentally that certain schemes of teaching produce certain effects on the writing. The speed or the grace or the ease or the legibility or the uniformity of handwriting or the bodily comfort of the writer or the mental development of the writer's attention and correctness might be furthered, but it remains a different question to decide which of these ends is the most desirable or which combination of them is preferable. Even the fight between the friends of vertical, semivertical, and sloping styles of writing cannot be settled by physiological psychology until the preference for certain ends is determined.

The writing problem is hardly to be separated from that of spelling. Here, too, the experimenters have been eagerly at work. The fundamental problem is in what way the mind best grasps the elements of a word. If we start from those simpler cases in which the sound corresponds with the sight, it cannot be difficult to examine by exact tests under what conditions the structure of a word is most correctly reproduced. Experiments have been carried on in this way. A series of artificial nonsense words are seen while the tongue is held immovable between the teeth, or seen and at the same time internally spoken, or seen and spoken aloud, or seen and written in the air, or seen and written on paper, or heard and spoken, or heard and written, or seen and heard, or heard and spelled, or heard and articulated and so on. Every time it was observed how many mistakes and how many transpositions of letters resulted when the children reproduced them later. The individual differences of visual, acoustical and motor types certainly play a rôle in the performance, but the general result demonstrates a considerable advantage for that method which allows seeing and at the same time motor

response by speaking or writing. The mere movement sensations which are usually held responsible for this success are probably less important than the effect which the movement as such has on the vividness and clearness of the sensory impression. If the channels of motor discharge are open the incoming impressions gain a distinctness which they cannot reach if the action is blocked.

The case becomes more complex when sound and sight do not correspond. A comparison of visual and acoustical methods is then obviously impossible, but the advantage of training by action remains the same. Of course the English language brings this discrepancy between the seeing and hearing to an extreme and the teachers are easily inclined to consider the difficulty in the spelling of English as a chief cause for the slowness in the progress of the school children. It is the typical excuse for the slow pace at which American children advance in school compared with those of the European continent, that years have to be wasted by learning the intricacies of English orthography. The excuse at once appears untenable, if we consider that, for instance, every German school child must learn not one but two ways of reading and writing, the English and the Gothic, and, moreover, an orthography which is hardly less distant from phonetic spelling. But, above all, the scare over the irregular historical spelling is to a high degree unjustified. The teachers are too easily inclined to overlook the important psychological fact that phonetic spelling removes most of the means and helps to a ready grasping of the sentence. If we had an ideal phonetic spelling, the child would have to make a much greater intellectual effort in the simplest reading. Those odd and queer ways of spelling are landmarks which help the recognition and apperception of the words in every line.

To simplify the spelling completely would mean to make reading very difficult. If to and two and too were written alike the spelling teacher would save less than the English teacher would lose. The child would progress still more slowly. The more differences exist, the smaller is the effort for the intellectual grasp.

Finally, we may turn to arithmetic. There is no disagreement about the fact that the mastery of the number relations is an essential condition for order and economy and practical success in our social life. It is at the same time the most immediate way to accurate and exact thinking and training of attention and memory. If this wider aspect of arithmetic is considered, it seems regrettable that there must be serious doubts as to the efficiency of the American school in this field. Throughout the land the people in practical life are slow, clumsy, and inaccurate whenever simple mental calculations are needed. The average clerk may secure the right result by written work, but his oral arithmetic shows all the signs of careless and slipshod methods. This lamentable situation suggests most strongly that the school does not enter sufficiently into the psychology of the process and is satisfied with results which do not last. Considering that superficiality is the fundamental national vice, mental arithmetic ought to become the means of training the youth and every step ought to be guided by careful psychology. The help from this can be the more reliable, since here, too, experimental work has taken hold of the problems.

Arithmetical calculation is an activity in which proficiency must be gained by training. The aim of the act is to find quickly an unknown figure from others which we know. To make that possible we must master the system of figures and must have at our disposal certain simple

equations like those of the multiplication table and the corresponding elementary results of addition, subtraction, and division. The development of the consciousness of number is a slow and a late one in the child's mind. The child may learn the mere words of the numbers early, but a real consciousness of the relations which go beyond four or five is hardly developed before school age. Thus it arises much later than, for instance, the space apperceptions. It is well known that the primitive peoples frequently cannot count beyond three.

The development of the first clear ideas of the number relations has been a most fertile problem of psychological discussion. The one party puts all the emphasis on the counting, the other on the visual perception of simultaneous impressions. The counting method relies on successive steps; its psychological advantages are naturally strongest for the individuals of acoustical type of imagery. The material which is used lies before the mind in the forms of time and one step is taken after another, adding one to another. The form of the other method is essentially not that of time but of space. The child is to compare three little balls with two, and four with three. The larger figures then demand a grouping into smaller units, and through careful combinations of groups even large numbers of objects, up to thirty or forty, can be apperceived as unities without counting. Careful experiments have determined the best adjusted grouping for quick apperception and the conditions under which the balls or points or lines are grouped with the least fatigue. We know what intervals in space are most desirable, we know the important effect which the movements of the eyes have in the interpretation of such groups, how movements of the hands are helpful and how simple

operations can become mechanical on the basis of such visual demonstration.

It is important that we have to acknowledge individual differences, also, with respect to the general attitude toward small groups. Some naturally start with the apperception of the whole and turn from that to the parts, while others build up the whole from the smaller groups and the elements which they perceive first. Those who start from the whole are inclined to overestimate the number, and the others are inclined to underestimate it. From these simplest problems a psychological doctrine of arithmetical instruction can lead, step by step, to the more complex procedures. The time measurement in thousandths of a second is an interesting method in this field. It shows differences as to rapidity between arithmetical operations which appear quite equal to the ordinary self-observation and through such a recognition of hidden differences we receive suggestions as to the ways in which a better training ought to proceed. As a most elementary illustration, we may mention the considerable time difference between even the simplest subtraction and addition processes and correspondingly, between the simplest multiplication and division. There is no need of such retardation in the subtracting act, and the experiment demonstrates that it depends only upon the fundamental lack of training in reversing the order of figures. If the children began to count backward as well as forward, this difference would disappear. Of course the whole richness of the psychological process is open before us only when we pass the limits of elementary arithmetic and enter the field of mathematics.

CHAPTER XXVII

THE HIGHER STUDIES

All the psychological functions which our survey has shown to us are active when the pupil enters into the realm of the higher studies. Whether natural sciences or mathematics, English literature or foreign languages, modern languages or classical antiquity, geography or civics, drawing or manual training are taught, the teacher must adjust the work to the whole mental personality and must consider the apperception and attention, memory and imagination, emotion and will alike. To enter into the discussion of detail cannot be the task of this volume, which must be confined to the principles. Moreover, as we said before, the experiment has not as yet conquered the specific problems of these more complex applications. A short outlook over the field must be sufficient: a careful study of this wide region must be left to a later volume on psychological didactics.

In our system of instruction the knowledge concerning the surrounding nature was the first important department which we discussed. Yet from a didactic point of view, we cannot possibly confine its importance to the acquisition of knowledge. The formal training which nature study offers, the training in observation and attention, in remembering and thinking, in discriminating and reasoning, in efficiency and orderliness, is certainly no less valu-

able. And finally it does not contribute less than any other study to the emotional inspiration which we demanded as an intrinsic part of school education. He would be a poor teacher of botany and zoölogy who did not fill the hearts of the young folk with love for the beauty of nature, with delight in flower and tree, pond and forest, in bird and beast. And again no one teaches the study of nature in the true spirit who does not bring near to the child the ethical meaning of nature's eternal laws which demand submission of the human will and widen and ennoble the human heart.

It is an utterly narrow idea to think that the study of nature is only utilitarian, and that its influence on the view of the world must be a materialistic one. Indeed, there is a widespread confusion which suggests that it is materialistic to give our interest to the material things of nature as against the world of ideas which give us idealistic content. The truth is that the study of material things can be a source of idealistic inspiration just as the study of ideal things can easily lead to materialistic views. Everything depends upon the attitude of teacher and pupil. It may be materialism to study nature only from the point of view of practical usefulness, but the nature study which really belongs in the school, which fills the young mind with awe for the laws of the universe and with joy for the richness of nature and with absorbing interest in the development and mutual relations of things, truly brings education and culture and makes a better human being. And yet it would be a narrowness to underestimate the contribution to practical knowledge. A certain amount of positive acquaintance with the stubborn facts of the nature in which we have to live our life, which gives us the material for the realizing of our duties and which forms the

background for our activity is indispensable. There is no need of giving to it any vocational aspect. Everything which has a partisan aspect is certainly quite antagonistic to the true seeking spirit of natural science. It is, therefore, a pity that much of the habitual physiology instruction dealing with the alleged influences of alcohol too often is a perversion of true natural science.

The order of nature study demanded by the laws of the mind should certainly begin with plants and animals and end with the physical and chemical laws and their relation to mathematics. It is a psychological mistake to begin too early with physics. The mental equipment for botany and zoölogy and physical geography is much earlier at the disposal of the child. However, the teacher must not forget how imperfect the child's ideas of time are. The temporal relations are those of which the teacher most easily speaks without awaking a corresponding reaction in the child. But the psychologist must still add a word of warning in a direction which seems contrary to the present day beliefs. For a long while it has been the fashion to demand that nature study turn to nature herself and emancipate itself from mere word knowledge. Yes, it has been this side of naturalistic instruction which has been most influential over the whole school life. In every field the concrete demonstration has been substituted for the word explanations of earlier times and the school books of our children are filled with maps, illustrations, and pictures of all kinds. We want the facts as they offer themselves to the senses, and not conceptions. No one can overlook the importance of such a demand; and yet the doubt must arise whether we have not carried this principle too far and whether it does not begin to interfere with more essential demands of true education.

If our psychological study has taught us anything, it is the fundamental relation between impression and expression, between the sensory stimuli and the reactions in us. We saw that we do not perceive everything which comes to our senses, but that our perception is completely controlled by our tendencies and habits of reactions, our psycho-motor attitudes. It is, therefore, entirely misleading to think that we really perceive that which is offered to our senses. We perceive of it just as much as we are prepared to perceive, and our preparation depends upon our general conceptions which control our modes of motor behavior. We perceive just what we are seeking. Ever so many adults move in the midst of nature and do not see anything of the differences of the flowers or of the birds, and their interest is not in the least stirred up by the physical and chemical phenomena which surround them. Their education and their life work has not trained them in reacting on those differences, and that upon which they are not reacting does not exist for them. They would perceive this abundance of interesting material if they had the conceptional knowledge of the facts, inasmuch as those conceptions express attitudes. We can almost say that we have true perceptions only of that of which we have gained conceptions; and thus it is putting the cart before the horse if we insist on the pupil's sense impressions and despise the development of conceptions, that is, of word knowledge.

The overestimation of the perception as against the conception, is one of those superficialities of pedagogy which are in harmony with many features of our time, but which cannot be excused and certainly should not be supported by true psychology. Of course it is easier to stir up the involuntary attention of the child by things and pictures than by conceptions and explanations, but the lasting effect

of those things and pictures will go just as far as well-developed conceptions have prepared their usefulness. This reaches its climax in the demonstration of the physics lesson. That which is shown to the senses is really not at all that which is the real content of the experiment. The demonstration does not intend to show one particular happening, but the general law which underlies it, and the law as such in its generality can never be perceived, but only conceived. What is seen is accidental; to gain from it what is essential the spectator must abstract from each part of the impression, and this mental inhibition of all which is not really an expression of the law can be secured only under the guidance of general ideas. Thus demonstration and conceptional thinking belong most intimately together. And where the equipment with neat instruments tempts the teacher too much to emphasize the showy part, naturalistic thinking must suffer and by that the demonstrations themselves become degraded to mere play.

In contrast to the knowledge of nature, we bring to the child the knowledge of men in the study of history. If it is to come to its strongest educational effectiveness, it must really embody this psychical contrast to the nature study in every fiber. Too easily does the historical account itself become only a part of an external world of description and explanation after the pattern of natural science. It becomes the story of human organisms imbedded in nature; and yet man as an organic being belongs in anthropology and not in history. The truest historical understanding does not set in until man is entirely understood as a subject and not as an object. The historical being is not a thing which we perceive, but a will with which we can feel and which we can internally imitate in its decisions and its demands. To render the history of mankind as if it were

only a movement of visible personalities, an external growing of nations, a migration over the continents, and a clashing on the battlefields, a coming and going by natural laws, in short, a history which is ultimately subordinated to the principles of natural science should have no place whatever in the school. Such an aspect is certainly of interest and value in itself and the student of sociology may follow it up. But the school-teacher must not yield to such ideas, or he will deprive history of all its educational qualities.

The true history, the only kind which the greatest historians of all time have told, is the history of human will in its freedom. It is the history of personalities and their mutual will influence. The development of mankind is then no longer a meaningless series of chance happenings nor the haphazard products of external effects, but the result of human intentions and human efforts. History becomes a great drama, in which each rôle has its meaning and in which each step must be understood by grasping individual personalities in their agreement and disagreement. All the natural, geographical, and organic elements of the evolution are then only the material which the human will finds for its work, and the connections of happenings are not to be perceived like the causes and effects of a planned nature but as the successes and failures of a purposive mankind. Hence at every point the antithesis between nature and history must come to its fullest tension. It is the difference between perceiving and willing, between substance and spirit, between the causal and the moral, between the thing and the man.

Only if this interpretation is given to the material of the history lesson can the abundant value of this side of school life make itself felt. Then only does the past be-

come living in the present. The will of those generations which have gone is felt as working in the life which surrounds us and which gives meaning to our own life. It is interesting and useful to know the flowers and birds around us; and yet it comes still nearer to the core of our personality to understand the customs and institutions, the national ideas and beliefs, the political and legal and social and cultural ideas by which we are connected with our fellow men. It sounds exaggerated to demand that just as the study of geography begins with the child's own village, the study of history ought to begin with the present and ought to work backward to the past. Practically this is not possible. The space relations in geography allow movement in every direction; the time relations of the history allow movement in the forward direction only. And yet the most immediate purpose of the historical study in the school is distinctly expressed in such a demand. The pupil becomes acquainted with the happenings of the past in order that they may illuminate the present and only that which can be understood in its relation to this end has fundamental value for the youth.

Moreover, only such a purposive view of history works toward the future. It opens for everyone, be he the humblest, the vista of his own life tasks. Every single fate is now entering into that larger whole where it agrees or disagrees with the historical forces at work. It needs the feeling for this fundamental contrast between will and nature in order to fill the human mind with the desire to take up the fight for the ideal aims in freedom and responsibility. The laws of nature remind man of his smallness; the triumphs of history remind him of his greatness. Nor does he see only his personal task. He gains from history at the same time the inspiring

belief that this great process is really a progress and an unending development. He becomes filled with enthusiasm for the great goals which mankind has fought to approach. But it is not only the gigantic forward movement of the whole stream of history which is essential; the life of every great personality will become an immediate source of enthusiastic emotion. Patriotism and loyalty, the world power of the deep thought of great thinkers, of the creative productions of brilliant artists, of the wisdom and strength of great statesmen, of the fervent ardor of great religious leaders will remold the young heart and prepare it for its highest endeavors.

If all this is to be reached, the teacher must subordinate the work throughout to such a purposive interpretation. Human individualities in their life blood and in the fullness of their will must always stand in the center. The form must be that of the narration which interprets the purposes, never that of the description which sticks to the external facts. Dates and names must be subordinated, the relations between human personalities must be in the foreground, in short the mental function to which the history lesson should appeal is the sympathizing will which understands men by sharing their intentions. All the details of didactic method must be controlled by this principle and the self-activity of the pupil must be developed in rendering the narration out of his own understanding. Instead of cutting the events into those small pieces which too often prevail in the questions of the teacher, the tests of understanding ought rather to be sought by making the pupil search for the wider connections and see larger and larger groups of events in united will relation.

This emphasis on the human factor by no means in-

volves the sliding down to mere anecdotes. Just as the simple experiment on the teacher's desk is meant to demonstrate a law which holds over the endless universe, the life story which the teacher narrates of a historical figure is to express significantly the inexhaustible spiritual energies which penetrate the progress of historical mankind. Everything trivial is therefore to be eliminated and the mere curiosity should not be appealed to, but the attitude of expectation, of inner tension relieved by moral satisfaction, ought to make the history lesson as vivid as an absorbing story. When young Americans are often blamed for the cheap, trivial, superficial view which they take of too many things, looking only to the immediate practical advantage and not seeing their life and the public problems in wide perspective, they ought to be blamed less than their history teachers who have missed their greatest opportunities.

It is this spirit of historic continuity and of enthusiasm which has secured the incomparable position of classical civilization in the higher education of the youth. The harmony and beauty of Greek life and Greek art and Greek poetry remain an eternal source of happiness and inspiration, but it is more important that the history of Greece and Rome is the foundation of our modern culture in almost every direction. To understand our own life, our own ideas of state and law, of world and human tasks, of knowledge and art and philosophy, we must turn to those nations which influenced most strongly the whole further development of mankind. But together with a historical understanding goes the suggestiveness of the Greek-Roman life for our own time. The simplicity of the human relations illuminates the complexity of our life. Much of all this can be reached without any ac-

quaintance with the Greek and Latin languages; and yet the psychology of association and emotion easily explains the extreme heightening of the effect when Greek life and Greek beauty are interpreted in the immortal verses of Homer.

At the same time the Latin and Greek grammar offer the formal training which in its logical discipline cannot be replaced by the study of modern languages. No one who understands the aim of true education will be scared by the cry that the language of Plato and of Tacitus is of no practical use to the young American. There certainly are other languages which are more useful for the traveler, more necessary for foreign conversation, more practical for looking up the latest book on a subject, but there is none which to the same degree widens the perspectives of the spiritual world, deepens the meaning of life, connects our individual work with the great stream of the history of mankind and thus makes us able and willing to realize the human ideals. Just the remoteness of the material adds to the intensity of the training; and on the other hand even the most indifferent sentence in which the grammar is learned will become living, if the right teacher teaches it, as he will always keep before the pupil's mind the decisive fact that it is a language which has made our civilization. The more a man is called by his vocation to be a leader in his sphere, the more the highest interests of the nation demand that he see the historical world in which he acts with reference to the decisive influences. It would therefore be shortsighted indeed to eliminate an intimate acquaintance with Greek or Latin from the formative years of those who seek the higher professions.

All this in no way reduces the important cultural

mission of the modern foreign languages. If they are well taught, their disciplinary value for the training not only of memory and attention but of reasoning, of imitation, of judgment, of automatic activity, of observation, truly lies in the direction of the best education. If they are poorly taught, the effect may be the opposite reënforcing the tendency to slipshod habits and loose thinking. Hence the responsibility of the language teacher for the development of mental power is large. Yet the humanistic value of a personal relation to the language and literature of another country remains even when the instruction lacks the disciplinary force. For our schools German and French alone are in question, but they are excellently suited to bring this humanistic enlargement of noble interests. The graceful spirit and the brilliancy, the translucent clearness and originality, the wit and spontaneity, the logical connectedness and the æsthetic refinement of the French mind must be a most suggestive supplement to the traits of the American character. And with still greater immediacy and with still more intimate feeling of common origin and of common sympathies, the American youth must be brought nearer to his ideal achievement by a full contact with the culture of Germany. German idealism and German thoroughness, German love of liberty and German loyalty, German belief in the value of truth and morality, German romanticism and German music, German philosophy and German educational ideals, all will awake latent energies in the American mind which too easily are left unexpressed and therefore unfelt in the routine of the American's own national life. The German language at first offers a certain difficulty to the pupil on account of the complexity of its style. Its educational value is therefore the higher, because the mastery of the

German diction involves an ability of the mind to hold a much more composite structure as a mental unity. The organization of the German sentences is like the manifoldness of lines in a Gothic cathedral, as against the simplicity of a classic temple. To feel the unity in such rich complexity means to develop the mind toward fuller ability. The psycho-motor apparatus becomes trained in richer and richer combinations. Again it may be insisted that the mere conversational usefulness is almost insignificant compared with such intrinsic gain.

The modern foreign languages and the classical ones, but above all the mother tongue, cannot contribute their best gift to the education of the youth, if they do not carry to the receptive mind of the pupil the beauties of literature. If it is well interpreted, literature will bring logical and ethical stimulation; and yet no study of grammar and no training of memory and expression must overshadow the æsthetic influence. Of course literature does not stand alone there. The acquaintance with noble pictures and statues and especially the instruction in drawing and painting, to a certain degree in singing, have to coöperate in the development of the æsthetic emotions which are so essential to true education. Perhaps they have never been more essential than for the education of young Americans in whose surroundings too many energies are antagonistic to the appreciation of pure beauty. The pioneer work which had to open and to utilize the land and to build up a great democracy absorbed the powers of the nation and left little leisure for the unfolding of the æsthetic sides of life. The religious traditions of puritanism have worked in practically the same direction. The æsthetic still stands too near to the superfluous or to the mere pleasurable amusement and enjoyment. The eternal value of the beautiful

and of the inner harmony is imperfectly grasped. Naked ugliness is still tolerated leniently when practical ends seem to be served. The devastated forests shout their accusations not only against the practical shortsightedness but also against the æsthetic obtuseness of the nation. It is less important that the museums be filled with costly pictures than that the walls in every humble home show a development of æsthetic consciousness and that the masses seek their literary enjoyment less in melodramas, stories, and newspapers which are trivial, ugly, and inharmonious.

The young generation needs a systematic education toward an instinctive feeling for inner harmony and balance, inner symmetry and beautiful fitness. A nation which enjoys nature essentially as a place for sport, which enjoys music as a mere amusement, literature as an entertainment, even art as a means of ostentation, and considers the social life only as the sphere of moral relations has not as a whole really learned to value the message of beauty and therefore lacks most important elements of true education. The school alone can scatter the seed which finally will bring the harvest which we need, the sense of harmony and beauty and inner fitness in nature and art and life. The new strength of the sense for harmony and perfection will bring to life that inner repose and completeness which a noisy life of mere chasing after success, of rushing and pushing, can never yield. Truly the happy mission of the teacher is in no line more momentous for the best future of the country.

Nothing is more important for the true æsthetic attitude than the suppression of every idea and association and impulse which leads away from the artistic object. The positive aim of the beautiful to be complete and perfect and harmonious in itself can never be appreciated

until the mind is trained to suppress everything which does not belong to the æsthetic manifold itself. If the ideas of causes and effects, of practical usefulness and scientific or historical truth are intruding, the beautiful work does not stand before us completed in itself. We must learn that there is no world outside of the frame of the painting and no further happening when the curtain has fallen. This inhibition involves a certain abstraction. No one appreciates a marble statue who misses in it the color of flesh. Every lyric poem, every drama, every story which the pupil reads, must be a schooling in the abstraction and inhibition and in the thorough appreciation of the mutual adjustment of the parts of the perfect whole. The child must feel how rhythm and rhyme and choice of words, metaphors and meanings, in the stanza belong together, how every element wills just what the others will and how this mutual support satisfies every demand which is raised by the poem. This feeling for the perfect satisfaction through the inner agreement of the parts of the experience is the most ideal education toward true happiness.

The essence of the drawing instruction ought to be exactly of the same kind. It ought to develop in the child's mind the sense of inner balance and harmony. Of course the drawing instruction can serve a variety of purposes. Drawing from a copy or from objects in the surroundings disciplines the power of observation and of attention, can be an excellent schooling in accuracy and neatness and thus indirectly in thoroughness, and adds greatly to the child's ideas of space relations and perspective. Such copying activity has been the object of careful psychological analysis in recent years. Many thousands of school children of various ages have been asked to draw

definite things which are familiar to them, an animal, a carriage, a church, or to render a thing which they see before them, a cube or a table or a landscape; and both the extreme individual differences and the differences of age and of training have been carefully analyzed. We know that the youngest children do not draw at all what they have seen but that they give graphic expression to what they know concerning the thing, and thus combine in their picture elements which are never seen together. Moreover, we know that their interest belongs essentially to disconnected detail. Slowly the state is reached where real impressions are controlling the drawing more and more and where at least the outlines correspond to the appearance while the depth, the shadows, the foreshortening are still neglected and falsified.

The individual differences may also be of many kinds and certainly cannot be reduced to a mere greater and smaller mental power of drawing. Some children do not know how to see; they do not analyze. Some do not keep their attention on the visual impressions, some are unable to coördinate the movements with the optical experiences, some are unable to project the three-dimensional space into the plane, some are clumsy in their manual movements, and so on. The psychological experiment already has done much in analyzing those various factors and in studying how far the defects yield to training. Here again it is interesting to notice the rôle which the motor processes play. The space relations are the more easily expressed in the graphic record, the more clearly they are interpreted by inner motor impulses. Whoever sees the great formal value of this kind of drawing for the power of observation and manual skill and appreciates this training in accuracy and the practical usefulness of skillful draw-

ing, may feel tempted to seek the ideal in just such instruction. And yet we must stick to the opinion that in the American school drawing instruction of this kind misses its greatest function, the education toward the æsthetic attitude.

However important the child's ability to draw a cube in correct perspective, it is more important that he learn to distribute a few lines in a little frame in such a way that the impression is harmonious, from simple symmetry to richer forms of beautiful arrangements. Certainly the youngest children ought not to be led to a kind of impressionistic drawing, which in their case would mean only carelessness. Even the effort to bring out the characteristic elements would be contrary to the psychological state of the youngest pupils. Their attention hangs too much on the detail which interests them. And yet it is just this which they must learn to overcome as early as possible. They must be trained to see things without reference to practical usefulness, but only with reference to the harmonious appearance. Drawing instruction is not nature study and the æsthetic schooling in inhibition, abstraction, focusing, balancing, and appreciation, demands its own rights at the side of the intellectual education in our schoolroom.

To a certain degree instruction in careful drawing falls in line with the purpose of manual training, which extends over the whole field of practical activities, including cooking and sewing for the girls and carpentering and work with metal and clay for the boys. There is no need of emphasizing, as in the case of æsthetic education, the importance of manual training for the young American. Yet it can well be understood that the introduction of manual training into the American schools has by no

means found smooth paths. Much resistance in the best educational circles had to be overcome. Just those who seriously felt the ideal meaning of true education were instinctively afraid that such practical education of the hands might open the school doors too wide to the utilitarian demands of a materialistic age. But seen from a higher point of view such a fear ought not to be influential, as the best meaning of manual training does not lie in its immediate practical result. Our time fortunately recognizes the extreme importance of industrial education and at last begins to satisfy the needs of those who leave the schools and seek an opportunity to learn a trade in a thorough, systematic way. But this vocational aspect ought not to begin before the industrial school is entered.

The manual training ought to be decidedly an element of general education, and as such its formal value and its value for the understanding of nature and life ought not to be underestimated. It brings the child into that sympathy with the hard labor of the world which can be reached only by imitation and personal effort. But more important than such a social argument is the psychological one. Manual training is the most direct education of the motor system. It cannot reach that subtlety which the motor action of speaking, reading, and writing demands, but it adds to the training in accuracy, carefulness and complexity of activity, the element of personal effort and strength. It is in this respect to a certain degree related to the physical training in play and sport, but its more systematic character and its greater exactitude give to it superior value. The true perspective of manual training is never gained as long as we consider it with reference to the later practical life. Not the future

artisan, but the future lawyer and banker and teacher will profit from it most. Its real background lies in the fact which we have emphasized on every occasion, the fact that the development of our motor functions is the fundamental condition for the development of our inner life.

CHAPTER XXVIII

THE SCHOOL ORGANIZATION

A DISCUSSION of school organization even in its most essential aspects would demand a volume much larger than this, the end of which we are approaching. A study of the principles of psychology with reference to education cannot hope to answer, almost by the way, the abundance of questions which belong to the school as a social institution. Problems of the financial budget, of public taxes, of political influences, of the cultural level of the community, of social and religious conditions, of traditions and prejudices, of race and sex, of health and hygiene and many others stand in the foreground there. To be sure, not a few of them are intertwined with much, perhaps with too much practical psychology. To tell the story of the American school boards is not seldom to tell a psychological story of sad interest. Yet here we should not examine those conditions which the teacher finds as given facts, however much the true success of the teacher's work may contribute to the improvement of municipal school politics.

Even such questions of organization as the size of the classes, while they are overburdened with psychological problems, belong ultimately to the budget. The too large class units which exhaust the mind of the teacher and make him unable to do his best, and which are most in-

jurious to the mental development of the pupil, are never sought by the school, but always forced on it by salary considerations. Nor is the teacher responsible for the unjustifiable delay in the entrance to school. Here, too, psychological factors are not lacking, but they belong to another field. It is the psychology of the parents which well deserves to be written with frankness and earnestness. Social conditions determine in the same way the number of years that the child can remain under the influence of the teacher. Even the lowest limit is very different under different state legislatures and social factors determine the number of school days which the child actually attends school. And, truly, much pitiable psychology is hidden behind the figure which tells that the average attendance of the school child in the United States during the year amounts merely to one hundred and seven days.

Again the teacher finds conditions which are not of his own making, if the pupil's work has to be adjusted to the entrance requirements of higher institutions. The demands of the college have had a most immediate influence and not always a healthful one on the inner life of the secondary schools; and to a certain degree this adjustment of the higher schools to the universities has worked backward on the higher grades of the elementary school. The high school has too often been obliged to organize the school primarily for those who intend to go on with educational work and, therefore, to give less attention to the special needs of that overwhelming majority of pupils who leave the school for a practical occupation. Of course there can be no doubt, looking backward over the last decades, that the raising of the level of the entrance requirements for college throughout the land has been the strongest stimulus for the progress of the school. Much

of the looseness and vagueness, of the inaccuracy and superficiality of the schools has disappeared under this pressure. The more the community demands that the professional schools for lawyer and physician, for teacher and minister and engineer require a college degree at the entrance, the more it may be hoped that the influence of the college will also work toward a concentration and condensation of the school work. The man who has to pass through college and a professional school becomes too old for entering practical life, if the traditional time wasting in the schools goes on. Two years might easily be saved.

On the borderland between social and psychological regions we find the difficult questions of coeducation in the school. The mental influence of the common instruction must be important; and yet hardly anything has been done so far to examine and to analyze the situation with the means of modern psychology. The popular statements that coeducation strengthens the girls and softens the boys, or from hostile quarters that it feminizes the boys and takes the charm away from the girls, lead us no further. It needs experimental inquiry to find out the differences in the various mental activities with and without the presence of the other sex. Yet the social elements are prevalent here, too. It is already a social problem before us, if we see that the cultural studies, which naturally appeal to girls more than to boys, become almost repulsive to boys in coeducational schools and are monopolized by the girls. Still more have we social problems, if we see how the girls stay through the high school, where the boys end their school period with the elementary school. The immediate influence on the sexual relations seems strictly a psychological fact, and yet this, too, is closely linked with social conditions. We see that it may with certain groups

have the effect of relieving sexual tension and of making the sexes indifferent for each other, and that in other groups it may have the opposite effect of heightening and irritating the sexual consciousness by the steady contact. Both results may have further social consequences, for instance, on the inclination to enter into marriage.

The question that might touch the teaching more directly is that of the equality of studies for both sexes. We have dwelt repeatedly on traits characteristic of the minds of the boys and of the girls. We know the differentiation in the later life tasks. To what degree is an exact correspondence between the education of male and female pupils desirable or even possible? Psychological, ethical, and sociological arguments must coöperate here. It is certainly significant that the private schools offer separation of the sexes as their strongest inducement, just as the oldest colleges of the land, like Harvard, Yale, Columbia, Princeton, and on the other side Bryn Mawr, Radcliffe, Wellesley, Vassar, and Smith, are anti-coeducational.

The institution of the private school also has its psychological aspect. It is easy to attack the private school from political principles, perhaps even to denounce its snobbishness or its commercial character; and yet it is even easier to understand its important influence and the favor which it finds not merely for regrettable motives. The greater individualization of work, the smaller classes, the less marked differences of social standing, the regular life habits of the boarding school, the hygienic and the æsthetic conditions will continue to induce parents who can afford it to send their children to the private schools. They may hope that those of a special talent will not be held back by the large classes of average pupils and that those who are especially weak will neither be unduly pushed nor entirely

neglected. And yet it may be very much doubted whether the tendency of well-to-do Americans to send their children away during their school time, and thus to withdraw them from the wholesome influence of the home, is not, after all, an undesirable tradition springing from selfishness. The responsibility of the boy and girl in the boarding school is enlarged; the pupil becomes a full member of a community earlier, but this advantage is reached only by highly artificial conditions. The most natural unit, that of the family, is neglected.

We approach psychological problems more directly when we turn from the choice of the schools to the choice of the courses in the school. We have met this problem on various occasions and we recognize just here the intertwining of psychological and ethical questions. Yet here, too, the social influences of most various character shade the situation, and not the least of them is the financial side. From the psychological standpoint it would appear much more desirable to have separate schools than to have various courses under the roof of the same school. The real dangers, to be sure, do not lie in the institution but in the motives. The temptation is too great to make choices for petty reasons. We have discussed the vocational aspect on the one side and the aspect of the personal taste on the other side. The fundamental fact remains that the gain in efficiency which might be secured by adjusting the school work to the personal interest is more than outbalanced by the loss of opportunity to train the power of voluntary attention. Moreover, the difference in the life tasks which demand a variety of preparation stands in no contradiction to the unity and community of the fundamental aims which demand the same schooling for all. As far as the primary school is concerned, the ground ought to be com-

mon in every respect. The safety and the progress of the state demand this community of instruction and inspiration, of adjustment to the present and the past, of knowledge and mental technic.

We come still nearer to psychological factors, if we look at the opposite side, the realm of discipline. Not the liking of the pupil, but the stern will of the teacher controls the situation here. Its moral justification must lie both in the ideal direction of the teacher's will and in the educational value for the individual pupil resulting from a period of serious discipline. This formative value of a severe régime would be gained even if the dominating will were adjusted to trivial ends, but this effect is greatly heightened and enriched by the superior character of the teacher's purpose. No doubt a flickering, shifting, unjust, moody, and selfish will in the teacher would even ruin the educational value of the disciplinary influence. The real training which is to be gained can be secured only if at the bottom of the pupil's mind an instinctive approval even of the rebuke and punishment is alive and working. Any inner resistance, not to the disagreeableness of the severe régime, but to its fairness and moral right, must interfere with the final success. All that we found in our analysis of the processes of inhibition and attention, of will and effort, must throw light on this important problem. But what is needed is real discipline; a mere begging and persuading is nothing but a counterfeit. And even that kind of subordination with which the team obeys its self-chosen captain in sport is a poor substitute.

If a generation is to grow up which is to be its own master and not the slave of its involuntary attention, which is to apply thoroughness in its lifework and to respect the expert instead of giving free sweep to mediocrity, then au-

thority and discipline are essential for the years of school life. Of course all this must not suggest the old-fashioned methods of boxing the ears and whipping, with the home supplement of being deprived of a meal. On the contrary, we no longer agree with the Greek poet that "the man who has not been whipped, did not get any education." The personality which is to be educated is not the physical organism with its animal fear of bodily pain and deprivation. The personality which is to be made able and willing to help toward the realization of the ideal purposes of mankind is the subject whose pleasure and displeasure depends upon its higher satisfactions and dissatisfactions. The feeling of honor and self-respect must be the medium of punishment and reward, as soon as the pupil has reached an age in which these more complex feelings have found their development. But whatever the form of the intrusion into the sphere of the personality, it must be unyielding and rigid, if it is to create the necessary inhibitions.

Much of that régime must be negative. It must involve an energetic suppression of bad mental impulses and habits, and a far-reaching exclusion of vicious influences. Yet the negative as well as the positive factors demand their reasonable and wise limitations. The exclusion of mental infection must not lead to a real isolation of the pupil. A child under steady supervision loses his chance to overcome the impulse, to resist the temptation. The time must come when the artificial world of supervision has to be left and the entrance into practical life made. The contrast will be too sharp, the danger of a misuse of freedom by mere reaction psychologically too near, if the educational period is held free from temptation and responsibilities. In the same way there can easily be too much petty regulation and arbitrary prescription. Even the training in accuracy and

exactitude does not contradict a far-reaching freedom in the work. The child must never feel himself to be a mere machine. Least of all would it be wise to overflood the pupil with commands not to do one thing or another. In studying the motor powers of ideas we saw that every vivid idea has a tendency to go over into action. To forbid an action of which the pupil may hardly have thought, means to call it forcibly to his mind, and the desire to realize it may be created just through this drawing of the attention to the act and may ultimately be stronger than the inhibition which resulted from the word of warning or even threatening. It is this psychological element which so strongly suggests that the influence of education ought to move in positive prescriptions. They are most forcibly supported by the example of the teacher and the contact with sympathetic fellows.

To give to the school work the value of discipline means to avoid the instruction becoming too easy, but it does not mean that the school should not make its best effort to bring the work under the most favorable conditions for learning and training. On the contrary, much saving of time and much gaining in efficiency will be attained if the highest possible attention is given to the schemes of instruction in order to waste no energy and to reach every desirable end by the straightest road. This is a field in which psychology is sovereign. Everything which we reported concerning memory and attention, effort and judgment, apperception and will, suggestion and imitation, fatigue and individual differences deserves consideration here. The influence of training, of habit, of stimulus, of inner impulse, of fatigue, of recreation, on the amount of successful work must be familiar to the teacher. The difference of psychological working types of pupils, the curves

of their fatigue, the differences between those who do their best at the beginning and those who climb slowly to the highest point of their achievement must not be neglected. The relation between learning and attention, the influence of repetition and rhythm, of expression and division of material on the economy of learning becomes fundamental here.

This interest goes far beyond the general conditions which are important for every kind of school work and turns to the technic of instruction in the particular field. We saw how individual differences and laws of motor activity and inhibition, of habit formation and memory and attention must determine the acquisition of the material in the learning of history or arithmetic or language or drawing. Moreover, the endeavor to secure the greatest efficiency of instruction and education through the fullest consideration of the psychological factors will involve a general hygiene of mental work. No true school success can be bought by the psychophysical exhaustion of the pupil. We have studied the experimental means by which fatigue of the individual pupil and of whole classes may be measured and may be differentiated. While the economy of mental restoration in the school child is still studied by far too little, it is already certain that the exact experiment of the psychological laboratory is the only safe way toward progress in this entire group of questions. So far the schools have profited from this development too little. They are hardly aware how many apparently antagonistic factors enter into the situation. A mere interruption by recess is, of course, no sufficient solution. Every interruption destroys the adaptation which is secured by a certain continuity of work. The interruption is, therefore, a period for gaining new power and yet at the same time a period for losing

power by loss of adaptation. Psychological studies must show where the right middle way lies, in order to win the best success. The haphazard methods which still prevail are certainly not in keeping with the progress of psychology. It must not be forgotten that all these problems are of a kind in which an automatic regulation is not to be hoped for. Mistakes and even sins against the laws of mental work may go on uncorrected because those who blunder are not those who directly suffer.

Of course the hygiene of mental work also involves all forms of play and games. It seems that it is not the school itself but rather the college with its increasing indulgence to the misuse of collegiate sport which has made the games a serious pedagogic problem even in the school time. The relation of sport to education has certainly become a national question, that is, a question which must be solved rightly or a serious harm to the life of the nation is imminent. And in this complex difficulty the fate of the high school sport will necessarily be determined by the development of the college situation. A baseball or a football interest which becomes hysterical is certainly a contagious school disease. Above all, it distorts the view of the value of the boys and puts emphasis where it does not belong. On the other hand, a healthy atmosphere of play will contribute much to the wholesome growth of mind and body.

But there is another demand which refers strictly to the school and primarily to the elementary school: the play of the American child appeals too little to the imagination. It is excellent as movement play and trains well the sense of organized and concerted action, of quick response and energetic effort and skill. But compared with the ways in which children of the European continent enjoy themselves, there is a marked absence of imaginative activity. The

games are colorless; there is too little effort to imitate in a playing way the life of the surroundings and to project the hopes and wishes into the youthful intercourse, as far as boys are concerned. They prepare too early for the rôle of the American man who leaves the cultural interests to the women of the land and gives his energies only to the struggles of life. Imagination, emotion, and æsthetic sense need no less training than intellect and action, and well-guided play is in this sphere as in every other an important method of preparing for the game of the social world.

Both at work and at play the school can do only a part; another part belongs to the influence of the home. How far the home should be used for a part of the regular school work may be open to discussion. The home study must be regulated with careful adjustment to social conditions. Individual psychological differences also deserve consideration. Certain children simply do not do their work faithfully, if they are left alone; others are unable to do work under the disturbing distraction of a noisy or a disorderly home. The failure soon becomes noticeable. Yet these facts suggest a much more exact and systematic inquiry. Moreover, independent of such individual differences, there remain strong average influences which make home work and class work unequal. The consciousness of doing the same work together with a large number of others has in some respects a stimulating and in certain other respects an inhibiting influence. The effect of these conditions has recently been brought under experimental investigation, but the results are so far not sufficiently clear and uniform to allow definite conclusions.

There can be no doubt that the psychological relation of the home to the school is only to a small degree covered by the question whether the work is to be written and learned

in the schoolroom or at home. The parental spirit and the attitude of the family toward the school is by far more essential. It even enters with full vigor into the boarding school where the child may not see the parents for three quarters of the year. Whether the child feels that the family is in sympathy and pays homage to the authority of the teacher or whether he knows that the school is treated at home as a negligible quantity makes a world of difference. It is true the average American is proud of the educational system of the country and believes in good schools, but for him that is a generality more fit for a political discussion than for the control of his personal attitude in the particular case of his own children. The same average American treats the school of his boys and girls as a bore and a burden and thoughtlessly and almost recklessly does his best to undermine in his children the respect for the authority of the teacher. The school will never come to its highest efficiency if the parents do not coöperate with it faithfully, if a bad mark in school is not a depressing discomfort for the whole family and a good mark in school a joyful inspiration to the home. We have discussed the psychology of autosuggestion. This feeling of unity between school and home is one of the strongest autosuggestive influences on the mind of the pupil. Its strength means progress; its absence poor work. Good schools are not built from the taxes which the parents pay, but much more from the respect for the teacher which they implant in the minds of their children.

CHAPTER XXIX

THE TEACHER

THE most important factor in school work is, after all, the teacher. Psychological problems crystallize about him plentifully. His relation to the pupil and the effect which he produces on the pupil's mind and, on the other hand, his own mental growth and training, the development of his own mental achievements as teacher, all may be analyzed and measured and explained and reënforced by careful attention to the underlying psychological principles. Yet just that side of the teacher which is most important for his success would seem most to elude the exact analysis. It is not his knowledge, not his energy and industry nor his skill nor his practice; it is essentially an educational enthusiasm which makes the teacher's personality. A teacher who does not feel the beauty and the sacredness of his mission and who has entered the school, not because his heart was full of the desire to teach the youth, but just to have a job and to earn a living, is doing harm to the pupils and greater harm to himself.

Whether the task is to show to the little ones the first elements of this curious world or to make the grown-up ones ready to take up the struggle of the world, it will be the inner warmth of the teacher which decides whether the instruction will be a success or a failure. For the teacher at his desk it holds as true as for the minister in the pulpit, that without belief in his heart, he is doomed.

No eloquence, no technic, no trick can deceive that most sensitive organ, the mind of a school child. If that suggestive element is lacking, the instruction may drag along over most interesting ground; and yet the pupils follow without faith and therefore, without spontaneity. And if the enthusiasm has touched the soul, everything will become living and inspiring. The psychological condition is a combination of suggestion and imitation. This will reach its highest point when the enthusiasm for the function of teaching goes together with an enthusiasm for the subject matter taught. There is no need of a distorted perspective. It is not necessary to teach the irregular verbs as if they were the center of the intellectual universe. Everything may remain in its right place and yet be full of significance and be interpreted in such a way that the importance of the whole of knowledge is felt in the smallest part. The pupil believes in the value of the subject matter because the suggestiveness of the teacher's enthusiasm makes him see it with new eyes. The teacher, of course, is interested in the particular material because he sees it in manifold relations to wider problems. His real interest belongs to that which he cannot bring before the pupil, but which in his own mind forms the background of those elements. On the other hand, the pupil's interest is absorbed because his interest in the enthusiastic teacher is projected into the indifferent material taught.

This reaches its fullest expansion only when the teacher's idealism does not turn merely to the content of instruction and to the task of teaching, but irradiates in every direction. There are windows in every class room; the right teacher will look out from his desk into the wide world, into the turmoil of men, into the joys and duties of life, and everywhere it will be felt whether he sees things

in the narrow, selfish aspect, or with a heart that believes in the eternal values. Everything, indeed, may be looked on in a trivial way or in a way full of belief. The beauties of nature and art become for the one mere pleasures of sense, while to the other they are sources of true inspiration endlessly valuable in their inner perfection. The harmony of men is for the one only a comfortable condition with the least possible disturbance, for the other an absolute good. Progress and even morality are for the one merely means of satisfaction to gratify human desires, for the other the realization of an ideal which gives meaning to life and eternal worth to every personality. And knowledge, too, is for the one only a practical tool helpful in putting through a deal and in getting a good job and for the other a joyful participation in truth and lasting wisdom. Such enthusiastic belief in the value of the human ideals is the best which the child can gain at the feet of the teacher. In a higher sense it is really the most useful thing which can be learned in a class room, and if it is glowing in the teacher's soul, there will be no child who will not feel its warmth.

This idealistic disposition of the teacher is, psychologically speaking, favored by a certain inborn emotional temperament. And yet anyone can acquire it. For most people it is largely the result of imitation and of narrow-minded influences that they are inclined to take a petty shallow view of the world. If ever their eyes are opened, the vision of idealism becomes a life reality to them. Whoever has entered upon the career of a teacher can still secure this wider vista. It will bring harmony to his inner striving. His mind will resound, his patience will become meaningful, his humor will become happiness, his daily work will become a real calling inexhaustible in its

opportunities. As soon as his belief in the teacher's mission has really penetrated the whole school work, the fulfilment of the task becomes in itself the best reward. The traditional complaint about the meager salaries of the teachers disappears with such a change of inner attitude. The teacher who goes into teaching for the money in it is certainly on the wrong road. He will find little in it and he does not deserve even the little which he may find. It is a fundamental law of economy that the inner rewards of a man's work are accepted as substitutes for the external ones. The more honor and respect belongs to a career, the more it is blessed by the dignity of ideal fulfillment, the more it can abstract from the standards of the market. Every member of the President's cabinet in Washington could earn five times more if he preferred a lucrative profession; and the same holds true of the leading scholars of the great universities, or of the great artists. Yet probably no one of them would exchange his position for another place. The life devoted to statesmanship, to the advance of truth, to the creation of beauty, is an incomparable premium in itself. And where others need rich income to secure a social importance by their expenditure, this end is reached by those who live to ideal pursuits through the mere significance of their unselfish work.

Pitiable is the community which does not respect the educators of the youth sufficiently to allow them a material life which keeps them free from wants and pressure. But if this is secured, the teacher should be the last to complain that his life lacks reward and satisfaction. His place in the community is one of dignity, his daily work gives him the joy of the contact with open-minded youth whose gratitude will accompany him through life. He spreads truth, he kindles enthusiasm he serves no arbitrary master but

the ideals of his heart. In this light it is, indeed, a sad experience to see the disappearance of men from the school-teacher's career. The statistics report that in 1880 forty-three per cent of the teachers in the public schools of the whole country were men, in 1890 thirty-five per cent, in 1900 thirty per cent, in 1907 twenty-two per cent. But even this twenty-two per cent is pushed westward and still more southward. In Massachusetts, for instance, the figure has already decreased to eight per cent, in Connecticut to seven per cent.

No one can overlook the natural disposition of the women for the teacher's calling. The sympathy and the patience, the friendliness and the humor, the consideration and the industry of the women have brought many of the noblest teachers' qualities into numberless class rooms between the Atlantic and the Pacific. And yet we should not neglect the dangers which are involved in this elimination of the male element. To put the education of boys in the years in which their manhood is developing, essentially into the hands of women cannot be without danger to the best interests of the community. It is a onesidedness which works against the fullest efficiency of the public school; and it is one of the most essential duties of the American school to win back the man teacher. Yet is there any doubt possible for those who stand near to the practical situation and know the essential factors that the financial condition has the greatest share in the responsibility for this emasculation of the school? The man has turned to better paying callings; the woman has remained in school because few other kinds of work offer to her better financial reward. Moreover, the woman has not only fewer chances from which to choose, but can get along with a smaller income because, unlike the man, she has not the

responsibility for the expenses of a household. That factor which for the true teacher ought to be the least important one has thus practically reshaped the whole educational situation, has expelled the man, has given the teaching of the youth into the hands of the lowest bidder. All this ultimately means that the full significance of the teacher's calling, the glorious inner rewards, his noble life work, the beauty and the dignity and the eternal worth of his mission are still misunderstood and hardly realized in the national commonwealth.

The personality and attitude are much but they are not all. The teacher must master the subject matter of his instruction—it may be knowledge to be acquired; it may be skill in which to be trained. There is no doubt that the educational system of the country is badly hampered by the insufficient preparation of the teachers. Their training is often inadequate and not seldom in the midst of their routine practice they sink below the level of knowledge at which they stood in their first teaching year. The teacher must draw from a full spring. It is not enough that he know what he wants the pupils to know and that he hastily supply himself in the evening with a reserve fund to answer the questions of the next morning. He alone can give information in an interesting way who might give a hundred times more than he has a chance to give. If a teacher interprets a simple poem, it makes all the difference whether he is versed in the whole literature or not; and his nature study may be confined to the elements in the class room and yet those elements demand that wide perspectives of real modern science be open before his eyes. The fuller his reservoir, the more he will be independent of the text-book and will brighten the lesson by putting the accent on the spoken word.

Surely to-day no one ought to be admitted as teacher to a high school who has not passed through a respectable college with a serious effort to specialize in the subject matter which he teaches. But even this cannot be the last demand. The community must press on. After all, the college is not the place for scholarly specialization, but for a broad foundation of general culture. And this general culture is needed in every class room of the high school. The specialization should set in during some years in the graduate school. The college should only make a beginning of such focusing in professional knowledge. The ideal high school teacher needs two years of graduate study in addition to a good college education. In a corresponding way the community must insist on a steady raising of the level for the preparation of the elementary school teacher. But certainly the scholarly supply and training must not end with the academic years. The teacher of mathematics cannot afford to let any year pass without reading a number of good new books on the mathematical field and following one or another mathematical journal.

This must not be misunderstood. It would be misleading to hold before the school-teacher the goal of original research. Work toward real advancement of knowledge is the proper sphere of the college teacher and is the very essence of the life of any teacher in the graduate school. It is in the interest of both parties, the school-teacher and the university teacher, if a demarcation line between the demands on the one and the other is acknowledged. They represent two different professions, each of equal importance and dignity, but each really different from the other. The school ought not to be a cheap edition of a college and the college ought not to be only a more difficult school. In itself, of course, it is not impossible that one or another

school-teacher may devote his leisure hours to a favorite problem and contribute to its solution. But such work does not belong to his professional task and is not needed to give to his teaching a background of high interest. The high school-teacher's greatest scientific ambitions ought to lead him to a real familiarity with the best thought in his field, just as the elementary school-teacher ought to aim toward the never-ending development of his broad general education. With such a background no work in the class room can become drudgery and no repetition of the course from year to year can make the mind narrow and dissatisfied. The teacher will win the love and the respect of the community and make the school an intellectual and emotional center of the highest ideal efforts in the common life. The more this irradiation of true culture from the school faculty is felt, the more the whole community will stand behind the school and will support it with all the means at its disposal.

It is a much-discussed question to what extent psychological and educational studies ought to enter into this scholarly curriculum of the teacher. The debate has not always been carried on with fairness. Sometimes even bitterness has entered into the struggle of opinion. As far as the educational studies are concerned, just the best friends of the school saw too clearly the shortcomings of many teachers in the scholarly preparation for their special subject matter. The teacher who has not learned his Latin sufficiently well to master it with real accuracy and thoroughness may too easily be tempted to substitute a certain educational technic of teaching Latin for the desirable progress in his Latin studies. The fear prevailed that the thorough study of methods might become a method of escaping thorough study. On the other hand, the advocates

of pedagogy pointed out with full right that they certainly encouraged the serious scholarly efforts and that their additional instruction especially when it was coupled with practical training, with historical retrospects and psychological discussion, must lead to a much richer fructification. Instead of making the children victims of clumsy experiments, the instruction would be at once brought into paths which have been tried and tested. On the whole the mood nowadays has become more tolerant on both sides and the importance of the educational studies has been the more acknowledged, the more they absorbed the results of educational psychology.

With regard to psychology the conflict seemed even sharper. The one party insisted that the analytic work of the psychologist can never do justice to the living reality of the class room and that the explanation of the mental facts can never tell us in what direction we ought to aim. Moreover, the abundance of technical difficulties were emphasized, the impossibility of applying exact psychological standards to the class room, the danger which a mere playing with psychology might bring to the teacher who needs broader education and above all, how much this analyzing and explaining attitude might interfere with the love and the tact, the sympathy and the interest in which the true teacher naïvely expresses his care for the pupils. The other party pointed to the beginnings of a really exact pedagogical psychology with all the means of the modern laboratory and emphasized that it would be absurd to ignore these newly won facts and laws which might be of practical service. The intensity of this conflict has decreased in recent years still more than that with regard to the educational studies.

The most important help toward the solution was the

rapid progress of this new experimental science. As long as the pedagogical experiments were only accidental by-products of general psychology, the suspicion and hesitation were justifiable and necessary. But since the pedagogical experiments in psychology have become an organized scientific achievement, the dangers have been greatly decreased and the point has been reached which the conservative party had hoped for. On the other hand, even the most radical friends of educational psychology begin to see the justice of the demand that psychology be supplemented by ethical inquiry. They begin to recognize that the relations between psychology and life are complex and cannot be expressed by a mere psychological explanation of the human functions. What was needed was a clean separation between the causal aspect of life which is, indeed, that of the psychologist, and the purposive aspect of life by which alone the meaning and aim of all human doing, and of the human ideals can be understood. The more each party has in this way recognized the relative right of the other, the more the time has approached to unify this manifoldness of efforts in the service of the serious teacher. Now it has become evident that the study of the psychological means can become helpful only when the aims of the teacher have been determined by the independent ethical inquiry of the philosopher. But as soon as these ends are determined, the richer and richer results of the experimental psychologist must be brought to the teacher, so that he may know and choose the means which are helpful in the fulfillment of his ideal aim. The time seems ripe for such higher unity. May this book help to bring us nearer to the day when such harmony of ethics and psychology becomes a living and joyful power in the happy heart of every true teacher!

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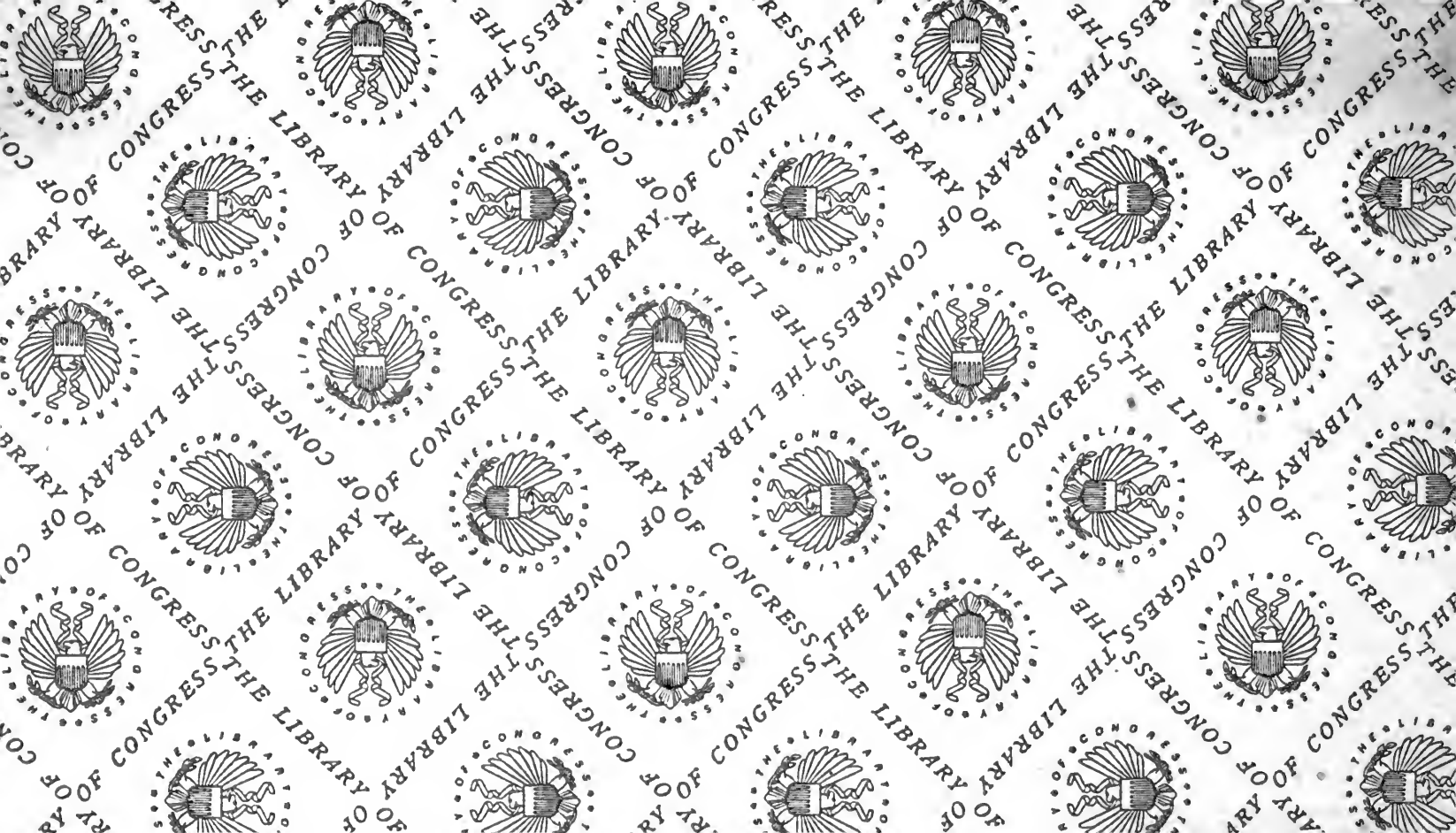
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